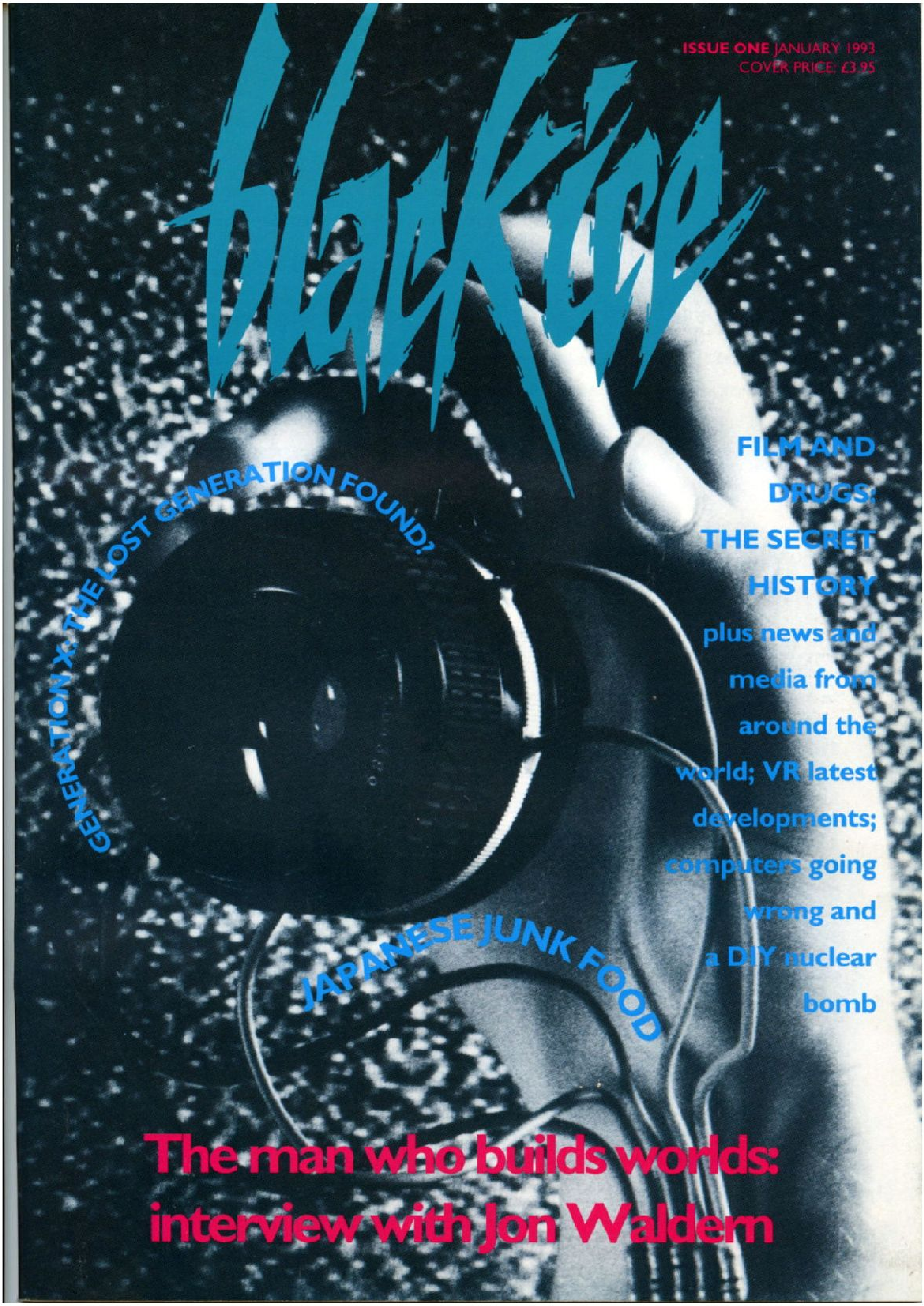


blackice

ISSUE ONE JANUARY 1993
COVER PRICE: £3.95

GENERATION X: THE LOST GENERATION FOUND?

JAPANESE JUNK FOOD

FILM AND DRUGS: THE SECRET HISTORY

plus news and media from around the world; VR latest developments; computers going wrong and a DIY nuclear bomb

The man who builds worlds: interview with Jon Waldern

Welcome to the first issue of Black Ice

Spurred on by sheer boredom with what's available on the high street newsstands, overdosing on media incest and rampagent egos in the industry – a band of writers, graphic designers and photographers have conspired to make something we really want to read and enjoy and I hope you do to.

We've been working on it as a concept for over a year, motivated in part by Mondo 2000s decline in editorial content. After some false leads with some notable publishing companies, one of which couldn't conceive of a magazine with interesting editorial content with depth and sophisticated layout at once – we decided to go it alone. Finally, last summer we got down to brass tacks to make the thing which has taken the last few months.

The title 'Black Ice' is the most deadly form of computer security rumoured to exist in the depths of Cyberspace from the series of 'Cyberpunk' science fiction stories by William Gibson. Neither of which currently exist, but may one day. The dictionary definition is ice that develops on roads at temperatures near zero which is hard to see and if you hit it when going at high speed you'll lose control of the vehicle.

This encompasses the way 'Black Ice' will be going – interesting, innovative and potentially dangerous tech from the near future and having the ability to throw you off the beaten 'media' track if you don't approach it carefully.

Black Ice will be a vortex of ideas giving you access to information as consensus reality and trawl alternative sources of information amongst the fringes of society. The magazine has a techie spin to things that it will be covering through this will not be limited to technological subjects – look out for the in-depth interviews that will awaken your perspectives.

The magazine will regularly feature:

Virtual Reality Future Television Smart Drugs Innovative Computer Technology Multi-Media Arcades & Video Games Japanese culture Alternative science/technology Solutions yet to be implemented Street Tech (use of technology out of context) Hackers and Crackers

We believe that there's enough people who feel the same way we do about what's being offered and want something more.

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Douglas Adam's hyperbook

Douglas Adams is getting closer to actually making the Hitch Hikers Guide to the Galaxy, by creating the Last Chance to See interactive CD-ROM.

Described as an 'illuminated Book' by creator Max Whitby, executive producer and founding director of the MultiMedia Corporation, the entire text of Last Chance to See is humoursly narrated by Douglas Adams in 6 hours of audio, 500 full screen colour photos with the text and audio synchronised. Recordings from the BBC radio series are also incorporated into the CD-ROM, with corresponding access to the book. Interspersed are expert commentaries and extra information from an Oxford zoologist.

Like most CD-ROMs Last Chance to See has sequential and random access to its contents.

Postscript TV?

The end of jaggy text may be around the corner if developments at Philip's electronics come to light.

The test system was found locked away in a back room of a trade show. It was comprised of a television set linked to a Mac IIfx working as the postscript interpreter.

The obvious advantage of Postscript fitted to your television is displaying teletex and other broadcast text won't look like state of the art 1970's graphics which they are. All typefaces will be scalable and the televisions resolution is irrelevant. Displayed images can be printed out in the original quality regardless of what's on the screen.

However you're not likely to see postscript fonts on your television for some time since the cost of the additional IIfx needed to run the system is getting silly.

The future of Quicktime?

While Apple is heralding Quicktime (digital video on a personal computer) as the next big thing for the computer market, professional video editors are already using what Quicktime may eventually evolve into. So don't sell your house yet to jockey your Mac up to work with Quicktime images a mere 2 inches square.

Lightworks is a British system that offers a random access full screen off-line editing system working in real time that operates with the same principles as Quicktime. Once you have shot your raw video footage you digitise all of the sequences to a hard drive. When all the material is in the computer's filing system you can then cut and paste the video and sound the same way that you can manipulate text in a word processor. The major problem and delays with video editing is that all the material is sequential on a tape, to put one piece next to another you will have to roll through minutes of raw footage to find the shot you want. When everything is on computer you just pick the scene and it's there ready to be combined with another piece of footage.

You are also not limited to one video player as a source deck when everything is digitised on hard disk. Several sequences can be combined with dissolves, wipes and fades as standard features on such professional random access digital video editing system. The Lightworks system can display up to 100 images on a screen and can have two videos running at the same time.

Unlike Quicktime, Lightworks displays video as full screen composite (PAL/NTSC) picture. Video can also be outputed in either of the two formats. Standard configuration for a Lightworks offline editing system is $34,000 with a 3 hr storage capacity — however expansion to 30 and 40 hour hard disk storage is available.

As is the case with Desk Top Publishing, once again the professional systems are on a collision course in price and performance with computer users' aspirations. Info on Lightworks from O.L.E. (071) 494 3084 Ltd.

Robotic rotweiller

Gone may be the days of posing thugs with rottwiellers down at the local pub. Instead a more user friendly, battery pooping robot can guard your home and is guaranteed not to maul any small children.

Recently introduced in the US, the Scout-About Home Service Robot, will constantly roam around your house while you're out, checking for intruders with an infrared sensor which registers body heat and an ultrasonic sensor that detects motion.

The portable robot which looks like the top bit of R2D2 with antenna also sensors to detect the sound of shattering glass and temperature extremes below 40 degrees Fahrenheit or above 100 degrees. Its alarm signals a dialer, which calls a monitoring station, which in turn telephones the police, neighbour or relative.

The Scout-About weighs 16 pounds and is approximately 16 inches in diameter and 11 inches high. It has a convenient handle and can be be placed inside a car; if someone breaks in, a 50-decibel alarm sounds.

The robot, which will cost in the range of £1,000, does not go up and down stairs, however.

Handwriting fonts

In a weird backward step a US company is now offering a service to create a personalised postscript font based on your handwriting.

To personalise your computer even more, Signature Software of Portland Oregon will for US$99 sample your text into the Mac and convert into postscript information. The finished font will give you connected letters or block characters when you write long hand.

While the potential opportunities for black mail are endless, the reason I started using computers was because my handwriting was truly abysmal in the first place. The last bit of new software I need to be offered is my scrawl as a system font.

access

The next stage in the telecoms revolution

British Telecom and Mercury Communications may lose their grip on the shared monopoly of the phone systems in the coming years if the cable companies start to aggressively market their systems.

Local video cable companies and large American ones are now offering inexpensive telephone services, lower installation cost and cheaper long distance calls as standards. However the companies only operate in existing cabled areas, but once wired up the user can expect to get several services down one wire. Huge savings over British Telecom's rates for installation can had, with new customers paying only 1/5 of BT's charges for a new line. If your already getting a sataliete service on your cable TV, the installation rate for a new line is 1/16 of BT's.

In a few years when the big two lose their stranglehold on the British consumer, the doors will be open for call broking. When you dial a number, it gets connected to a central broking agency that then routes your call the fastest and most inexpensive way, be it via sataliete up and down link, transcontinental cable or leased microwave links.

In Mexico its already less expensive to use call brokers based in New York to connect to a friend 200 miles away since the local calls are still.

IBM networks into your house

IBM and Rogers Cable TV, (a Canadian cable television company) have signed an agreement to study new technologies to transmit, text, images, video and sound.

The agreement would address the growing market for multimedia technologies which combine these elements in one system. The test will take place in Toronto,. Rogers will provide the fibre-optic links that will connect sites across the metropolitan area, testing the network's capability of transmitting data at the rate of one gigabyte a second, or the equivilant of 20,000 pages of single spaced text.

These advanced transmission lines could provide video conferencing and computer to computer communications far cheaper to what is offered today.

Your snaps on television

Soon it will seem that the huge lumbering photo album will be a thing of the past, relegated to the waste bin, replaced with the flash 90's version – the Kodak CD which is now on the market and doing well.

The CD ROM and stereo system will play standard audio CD's as well as displaying your digitised holiday snaps on any television set. Using the system is straightforward. You bring your film down to the lab where they send it onto the special centre that develops and digitises the images.

A single roll of film to be developed in this way costs £16 and can hold 100 images. The new 'multi-session discs' will store several rolls depending on the length of film used in the first place. Each time you need a film developed, you simply return the film with the partially filled CD to the lab where it will be stored until they reach the 100 limit.

Once you have your flashy gold CD-ROM back from the photolab you can access it with the aid of the Photo CD player in a variety of ways. In shades of **Blade Runner** the user can rotate the image, reposition in on screen and zoom into the interesting bits. The system will not however compensate for out of focus snaps, thumbs over the lens or cutting your gran's head off but can be programmed to conveintaly ignore them along with your preferences for edits and zooms.

Each image is stored in five different levels of resolution from thumbnail to highest resolution suitable for HDTV.

Hydrogen peroxide movement

A Grass roots movement is rapidly developing in the United States and here in Britain, using Hydrogen Peroxide, diluted with water as both cure all and preventative medicine against a broad spectrum of diseases. The treatment works with everything from acne to cancer and has even be beneficial against the HIV virus.

The basic idea behind the treatment is that by increasing the amount of oxygen in your body with hydrogen peroxide, it stimulates your immune system and kills bacteria and virus's. Hydrogen Peroxide (H202) is water (H20) with an extra molecule of oxygen, which breaks off when mixed with something it can react with. This is demonstrated when you put hydrogen peroxide on a cut. The liquid bubbles, releasing the oxygen which kills the bacteria and viruses which are anaerobic – unable to live in high concentrations of oxygen.

The movement's main leaders ECH2O2 – Educational Concern for Hydrogen Peroxide in the US and ECH2O2 in the UK are run by people over fifty who have become dissatisfied with mainstream medicine, have found something that works on a wide range of diseases and illnesses, costs very little to purchase and even less to manufacture.

Using Hydrogen Peroxide purchased at Boots, the proponents dilute drops of it in a glass of water and take three doses a day, increasing the dosage depending on severity of illness or the need to top up the body with extra oxygen lacking in large cities and polluted areas.

But the Hydrogen Peroxide movement is just one part of a growing medical community that is using hyper-oxygenation as a medical tool. The International Bio-Oxidative Medical Foundation is a professional body established in the US to train doctors and correlate information on the use of Hydrogen Peroxide as a medicine. At the opposite end of the spectrum is Medizone which is using an Ozone (O3) based infusion system specifically designed to cure Aids by mixing the patients blood with ozone outside the body then re-injecting the patient.

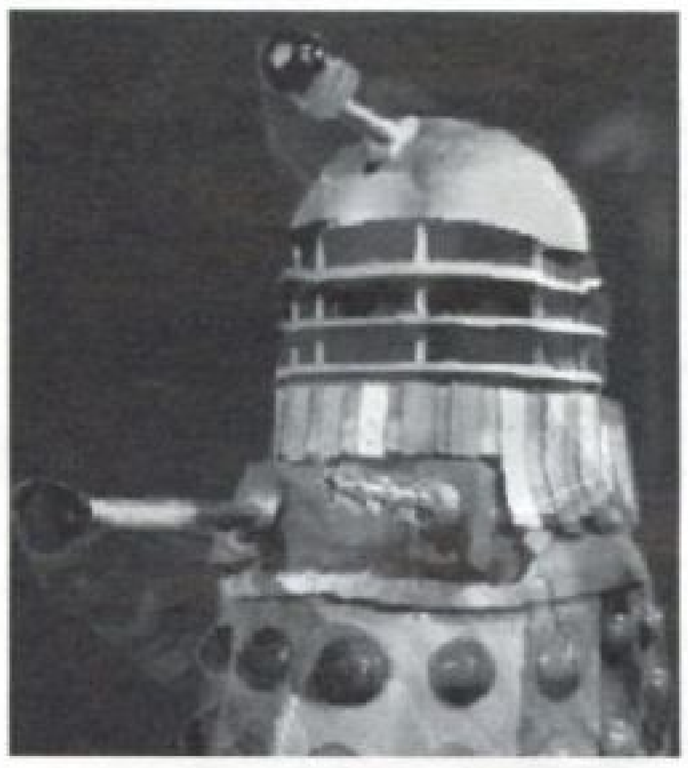
There are claims of profiteering by members of the grass roots movement who say that all you need is Hydrogen Peroxide, which can be self administered, and that the more organised professional bodies are simply over complicating things, making a large and continuous profit out of a simple but effective cure.

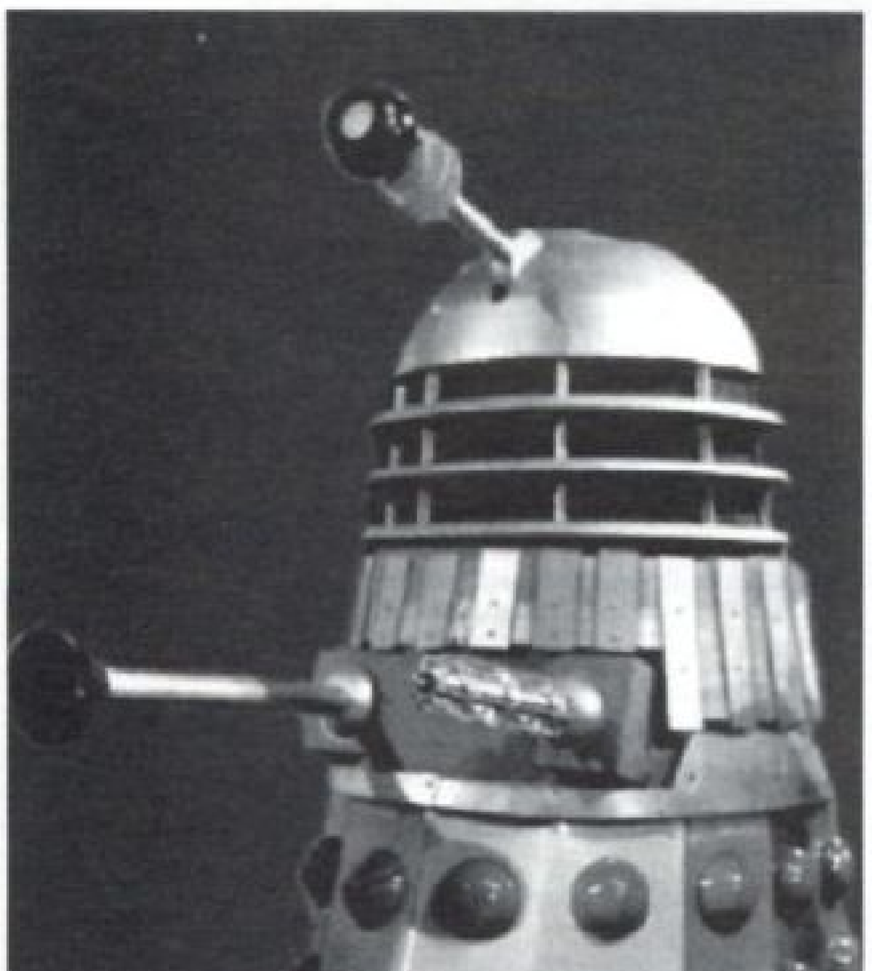
While mainstream medicine has yet to accept any of the claims made by the movement, the chemical companies have been swift to limit the availability of food grade hydrogen peroxide and those brands with a higher percentage of oxygen in them. In the US, the FDA has issued warnings and reportedly banned the sale of the food grade 35% from store shelves.











Desk top morphing

Have you ever had the urge to mutate into a wild and untamed beast? Tried unsuccessfully no matter how many Heineken your drink? Now state of the art computer effects found in Terminator 2, Michael Jackson videos and an increasing amount of television commercials can now be done at home.

Morph from Gryphon Software Corporation (based in San Diego) can let your dreams come true. Released in the US at the Boston Macworld show the software had a constant crowd of onlookers mesmerised by the metaphoses taking place on the humble Mac.

The straight forward and simple-to-use package takes illustrations, scanned photos or television-sampled images into both begining and end points. From there the software runs itself, creating any number of in between images from your two originals. A multiple series of morphs can take place place by simply adding and linking more in and out points. A changing president on American money is used in the demonstration files.

Fine tuning of the effect can be achieved by selecting the outline areas to be morphed by placing small dots on the photographs. Films can be made automatically by setting time, number of frames and file name. The software takes a few minutes to run depending on image sizes, but when finished you're presented with a film of change in the file format of your choice including Quicktime. Morph retails at US$149

The electronic guide comes down to Earth

Sony and Panasonic have launched palm sized CD-ROM book players that feature a complete Qwerty keyboard, cursor, function keys and a back-lit display screen. Sony's Data Discman and Panasonic KX-EBP1 both access information by typing individual words on the keyboard or by a choice of simple menu-based, cross-referencing and graphic search techniques. The player can be plugged into a video input of a TV screen for larger-scale presentation, and will also play 8cm audio CD singles currently available elsewhere in the world. Batteries will last approximately 3hrs.



Each electronic book measures 8cm in a compact disc format, and can contain up to 100,000 pages of A4 text and/or 32,000 visual images or a combination of both. One CD electronic book can condense the same amount of information that if printed would take up as much room as 200 London telephone books.

Sony's first available titles will include an electronic speech writer's kit, with around 10,000 quotations and inane jokes classified in specific topics for easy searching. According to the press release 'the international delegate will find this portable source of information of great value to him whilst entertaining guests on the golf course or in the boardroom'.

Closer to Hitch Hikers Guide to the Galaxy in usefulness is the CD-ROM release of 'Time Out' London Guide' which will incorporate the city guide and the eating and drinking guide on one disc. Cross-referencing will be especially useful with the CD-ROM being divided into key locations, giving instant access at the touch of a button to a wealth of information.

Columbia Tristar's first electronic book titles will be available at Sony retailers nationwide and airport shops. The titles will range in price from £24.99 to £39.99.

D-I-Y kangaroo for one

Once Superman was said to leap tall buildings in a single bound. Now countless trainer companies are claiming that their inflatable heels recover energy that would otherwise merely heat the pavement.

However if you really want to get a start at jumping tall buildings then strap yourself into the 55 pound device called the SpringWalker. The device lengthens your stride, doubles your leverage and stores twice the amount of energy as the next most efficient hopper. "We recover about 80 percent of vertical energy" according to John Dick (no kidding) president of Applied Motion in Claremont, California. "Kangaroos recover about 40 percent, by far the best of any animal."

Robots to run amok?

The heart of the US defence industry in Long Island New York is currently being devastated by the recession and cutbacks in US defence spending. One company, Astro Systems Inc is prospering, taking an oblique approach to product development by retooling for peace time with animatronic robots.

The fluffy computer controlled robots have fluid motion giving them lifelike appearance and are synchronised to sound and motion, using a simple walkman-styled cassette player. The robots are programmed by using another puppet which you control by hand. When you're happy with the puppets movements the audio tape is placed in the puppet's player and the entire creation comes to life. A selection of outer skins are available including a friendly grandpa, a comical duck, a shaggy dog, and the generic scalely green alien.

Designed for use at conventions, fairs, educational tours and special occasions, the AstroNomical robots were originally used by creators of the Muppets and to run the Cookie Monster and Oscar the Grouch figures at two Sesame Street theme parks in the USA.

But what will happen to the cuddly and friendly robots when the recession is over and military spending is on the increase? In the event of war will we see robotic decoys shaped like Miss Piggy? Roger the Rabbit in army fatigues wielding a machete? Or the more mundane but plausible endless clones of Arnold Shwartenager on the battlefield? Will this be the birthing grounds for The Terminator?

Computer mind control

The man machine interface is getting more intimate thanks to the invention of the Relax Plus infra red biofeedback system by Ultramind Limited.

Taking a different approach to the standard biofeedback systems on the market, Relax Plus sensors are used as the basis of several games whose objects can be reached by relaxing instead of senseless violence. Once you're wired up to the system the computer can interpret the stream of raw data several ways. In the simple and colourful evolution game you start off as a tadpole swimming forward as you relax. The more your relaxed the further you go and after scrolling through a couple of screens you evolve into a fish, then onto a mermaid, grow legs and walk upright onto a beach and if you're really good you can reach the stars by becoming an angel. Other games including computer adventures using the system are in the works.

Since the sensor measures skin resistance, you can connect the leads between two friends who are holding hands and play the game with a group of people. Speedy results were found by people who capable of self-hypnosis.

The more serious aspects of the software include various tests, measurements and exercises for control of stress which the software runs you through in simple steps. And if the entire system is getting too easy for you, it allows for an alteration in sensitivity to fine tune your reactions.

Current trials using the system include children undergoing chemotherapy, pregnant women and use at a Harley Street Stress Clinic. Other plans for the Relax Plus is to integrate the sensors as a new interface to a variety of products.

Designed for use at health clinics, in the home and for corporate use Relax Plus runs on IBM PC and retails at £189.00.

Cyberlust comic

Billed as the first computer generated erotic comic for adults only, Cyberlust is a generic cyberpunk styled comic with bit mapped nudity. Published by Aircel in three parts.

The rocketeer

Once the dream future of every American household in the 1950's was the personal airplane. People of tomorrow would fly to work at their leisure making the skies the highways of the 90's. Well that idealised dream of the future died somewhere along the way, but avid readers of American Popular Science may be able to get a headstart on the rest of us by ordering one of several mail order flying kits from the small ads.

The dream of the personal helicopter is the most popular. For US$14.95 you can get plans to build your very own simple one-man helicopter which boasts 'low cost assembly', 'can be built in a week', '95 mph Top Speed' and 'no license needed'.

For the more adventurous propane powered jetpack plans can be had for the same low price of US$14.95. It's simple, inexpensive, and will fly for 30 minutes! No mention of exploding into small parts when something goes wrong.

Alternatively try the human powered ornithopter. Made from Kelvar, carbon fibre and Epoxy construct you'll look a sketch from Da Vinci's sketchbook with this on your back. It will take you two and half working weeks to complete and the promised cost in parts is under US$100. Whether it actually flys or not is another matter.

Disappointed with the current prototype, the physicist inventor is currently designing a 25 pound sports model. When completed the performance will be approaching a comfortable gait of 25 miles per hour on par of Carl Lewis's average.

The actual device looks like the bottom legs of a huge metallic Ostrich. In fact it's a spidery exoskeleton of levers and stilts that straps to the torso and feet and suspends the wearer 18 inches above the ground. Pumping the feet stretches and relaxes a bungee cord mounted behind the operators back. The shock absorbing spring leaves joints unjarred but people have problems standing still without falling over, so the boffins are designing mechanical toes to give the device more purchase on the ground.

Plans are underway to install servomechanisms to the SpringWalker which would add three parts of motor power to every part of leg power. This future feature especially intrigues the US Military who are fascinated by the possibilities of such a 'man amplifier'.

Godzilla... monster or politician?

Little did Inoshiro Honda know doing when he directed Godzilla King of the Monsters in 1954 that he was creating the most famous film monster after King Kong most popular monster and hero of Japanese children and Japanese history.

Originally Godzilla films started as a serious way of getting important messages across to an uninterested public but slowly deteriorated into childish monster wrestling bouts, with no story and no interest (except for pointing out the eye holes in the rubbery monster costums and laughing at the bargain basement special effects).

Ever since the Godzilla first appeared in 1954 he has been a symbol for something in Japanese society. In 1954 he symbolized the destruction of the atomic bomb: the evil of nuclear weapons and their power to destroy entire cities and millions of people. It's not surprising after the horror of Hiroshima and Nagasaki that the Japanese would find it necessary to put out anti nuclear propaganda to show the world just how much of a threat the atom bomb was to the human race. Later on in his film life he somehow became a symbol of hope and the saviour of Japanese children. He was the hero who overcame all odds to save Japan and its countrymen. Later still he was the eco-symbol, who along with many other children's heroes on TV set out to rid Japan of its pollution and smog. A massive success when you consider that Japan can now boast that it is one of the cleanest countries in the World. But now in his 17th film could it be true that he has become a symbol of Japanese aggression intent on wiping out America and any other country that stands in its path? If you were to listen to the American authorities it would seem that way.

In 'Godzilla vs King Ghidora' people from the 23rd century (nearly all are American) return in a time machine to 1992 to change history. Telling the Japanese government that Godzilla is going to awake and attack Japan, by destroying nuclear power stations and spreading nuclear pollution over all Japan, wiping out the Japanese forever, they arrange to go back in time to World War II and move Godzilla who at that time was a dinosaur-away from the island where it lived so that, when a nuclear bomb hits the island he won't turn into the giant mutant lizard that is Godzilla. This way Godzilla will never be born and Japan will survive. This is agreed, but whilst on the island the future people release three Dorats and when the atom bomb hits the island, these turn into King Ghidora who is then loose to destroy Japan. But why? Well it turns out that in the 23rd century Japan has bought the entire world and is the most powerful nation in the history of man. King Ghidora was made to stop Japan's rise in power and give America and the rest of the World a chance. So is this Anti-American? When you look at it,yes. The Americans are portrayed as the bad guys. In the scenes in Word War II we see them being crushed by Godzilla as he saves a Japanese unit from them.

They salute him as he walks away into the jungle having killed the Japanese people's enemy.

But Godzilla may be being used to push home a point when it comes to the much hated Tax Tower in Tokyo. This massive new building goes against everything in Japanese culture, being monolithic, over powering and totally immobile. In Japan, nothing is permanent.

Even the holiest of shrines are moved every ten years because the Japanese belive that nothing ever stands still and to not move forward, is to stagnate. So in Godzilla vs King Ghidora the main battle for Japan is done with the Tax Tower in between the two monsters and just happens to get blown to smithereens. Whatever happens in the future Godzilla will always symbolize one thing in the



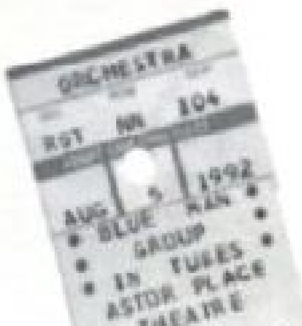
mind of most fans of monster films and Science Fiction and that is unashamed mass destruction. The last word should go to Godzilla's special effects director from his latest film Koichi Rawakitae says "It's a way to let off steam. I'd like to see Godzilla destroy Disney land next", Oh dear, I think that just might be Anti-American.

Greg Lamb

For more information on the Church of Godzilla write to:

Church of Godzilla
51 Cotswold Court
Gee Street London ECIV 3RX,

Filmography Godzilla-King of the Monsters 54; Gigantis-The fire Monster 55; Godzilla vs The Thing 64; Ghidrah-The three headed Monster 65; Godzilla vs The Sea Monster 66; Monster Zero 66; War of the Monsters 66; Son of Godzilla 68; Destroy all Monsters 68; Godzilla's Revenge 69; Godzilla on Monster Island. 71; Godzilla vs the Smog Monster 71; Godzilla vs Megalon 73; Godzilla vs the Bionic Monster 74; Godzilla 85. 85; Godzilla vs Biollente 91; Godzilla vs King Ghidora 92



Blue Man Group are truly something different. Their three members are not "theatre" people, just working New Yorkers who meet regularly to brainstorm and create the protagonist, a blue, bald-headed man. Although there are three "blue men," they think of themselves, peculiary, as all being the same, single Blue Man.

Blue Man might be from another planet, or he might just be an alienated human male, although his maleness is not emphasized. There are no spoken words in Blue Man's performance. "Performance" doesn't seem an accurate term for Tubes, their award-winning off-Broadway show. In fact, Tubes does away with most formal theatrical devices, such as "stage," "backstage" and "audience." The whole thing is very unique and new and very high-tech, yet, strangely, Blue Man is also very . . . organic.

From the beginning, you know you're in for something unusual. The theatre lobby and seating areas are full of tubes. A blinking sign, like the type you watch while waiting in line at the bank, encourages you to speak into the tubes, because some of them are connected to the backstage area. Your link with those backstage becomes eerily apparent as you come to realize "they" (whoever that might be — the show hasn't started and you don't yet know who the players are) might be watching you. The flashing sign begins to comment on certain members of the audience.

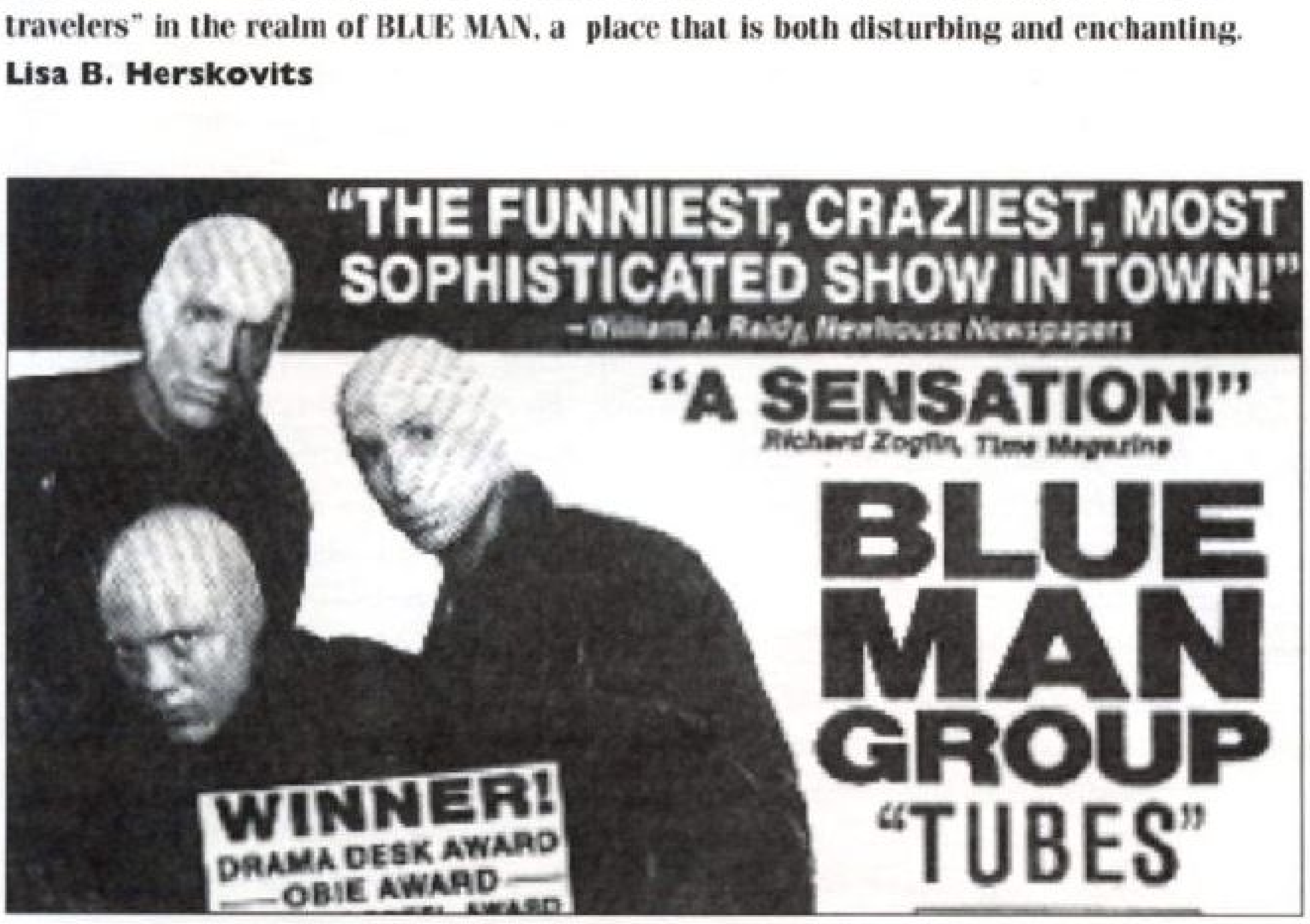
Right from the start, you're involved. The sign suggests you wear recycled crepe paper armbands, distributed by costumed workers, if you want to participate a great deal in the happening. The theatre has many return attendees (the cheapest seats are only $22.50 (£12.00), making this a fairly affordable evening's repeat amusement) and this has become a popular place to take party guests since it's cheaper and certainly more fun than a "regular" party.

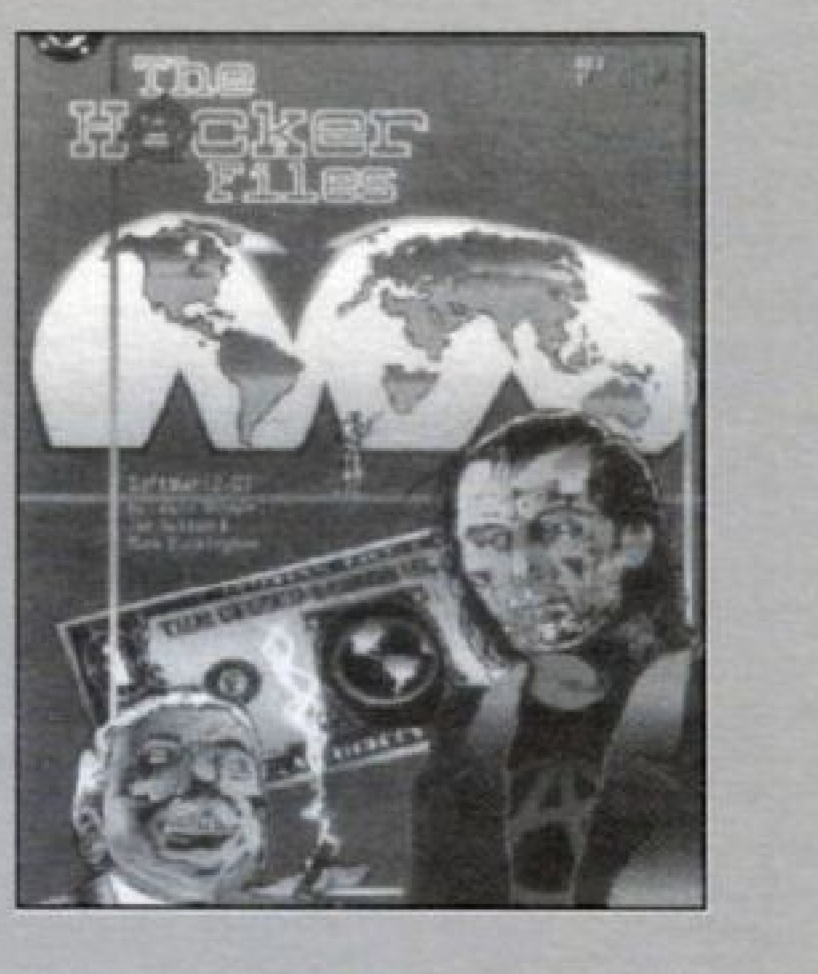
A lot of this show is about how we're all "on overload," whether we like it or not. Blinking screens give us too many words to read. It's impossible to focus. High-tech video sereens with sophisticated computer-generated images are presented right along with words written on ordinary placards, turned manually by Blue Man at much too fast a pace to be completely read and absorbed. Sophisticated demonstration of computer-generated fractal geometry is projected, bit by bit, on shaving cream that is spread on a screen with spatulas by Blue Man. The artistic process and the art world are promptly ridiculed by Blue Man, who spit colored paint at canvasses and do other strange things to create art, such as apparently painting a man blue, suspending him by his feet, and slamming him against a canvas. Beautiful music is made with peculiar instruments which seem to be made out of . . . tubes.

The things we eat are examined. "Light" junk food? Of course. And a brand of breakfast cereal whose crunchiness is its primary selling point is eaten so noisily, its consumption becomes a percussive performance art piece. Why not? Isn't that what you're really supposed to do with the stuff? Blue Man is just following instructions. The very process of digestion is examined.

There is much illusion here. Time and place become abstract, and you quickly doubt everything you are seeing. The world of virtual reality and its possibilities are briefly explored, and, tantalizingly, the concept "virtual traveler" is introduced. We are shown such travelers, sitting quietly in colorful cocoons, as we ourselves become "virtual travelers" in the realm of BLUE MAN, a place that is both disturbing and enchanting.

Lisa B. Herskovits





Hacker Files

DC's recent history and their continued development of adult/left field comics (**Hellblazer, Swamp Thing**) suggested that a well-thought out Cyberpunk/Hacker title could hardly fail. Add to that the talent of a writer like Lewis Shiner (one of the original cyberpunks) and expectations were high.

So what the hell went wrong? The **Hacker Files** is a singular failure. Shiner's text is a disastrous mess of cliche and genuinely embarrassing youth (punk?) elements. Central protagonist is Jack Marshall—a computer wiz with a dubious past (who bears a libellous resemblance to an aged version of a certain East Coast editor of a hacker magazine)—who is called in by the Pentagon when their systems begins to crash. The Gibsonisms are relentlessly dragged out, dusted off and re-used. We're presented with anarchist hackers, the Net, corporate machinations and NSA subplots.

The narrative is bad enough. Even more insulting are the superficial attempst to signify that this comic is 'genuinely interested' in computer subculture. Marshall's anarchy t-shirt which also appears on the computer generated cover and his explanation of speed metal tries to connect with a movement they barely know anything about. Not since Peter (Spider Man) Parker's hippy days has a sub-culture been so self-consciously presented.

The art and design are even more confused, which could perhaps be seen as surprising after Shiner's intensive transpotterish explanation for the panel structure in issue **1**. By its nature the text is centred on narrative rather than super-hero fights, but for some reason the panel structure neglects this. Occasionally, of course, we get presented with computer graphics—presumably to break the monotony. While these generally suck at least Rudy Rucker's software is used in one instance... if nothing else it may turn kids onto Rucker. (cont. page 9)



Lawnmower man

OK so **The Lawnmower Man** was a crap movie, but did anyone really expect anything else? by Jim McClellan

Pre-release hype may have tried to suggest the film was a maverick "low-budget" production, put together away from the grasp of the big Hollywood studios, but the cyber-cognoscenti surely didn't think they were going to get a thoughtful meditation on the potential pitfalls inherent in the development of virtual reality. A booted up slice of tech noir FX flash aimed at the post **T2** audience was always on the cards, as was the eventual conclusion of the VR in-crowd—Nice FX, shame about the movie. What wasn't quite so expected was that the film should be **such** an incoherent mess. This isn't a film which is "so bad it's good" (though it desperately makes a pitch for that audience). However its awfulness is interesting, its incoherence does actually bring into focus the current apocalyptic discourse in which VR has been presented to ordinary punters. And the movie as a whole hints at an explanation for the modern Hollywood film's reliance on nonsensical kinetics above all else.

The starting point for the incoherence was the film's producers' obvious fear that VR still wasn't well enough known to carry a mainstream movie. Hence the use of an old Stephen King short story as the basis for the plot. Of course all they really wanted was the above-the-line pulling power of the goremeister's name. Consequently the film was stuck trying to meld together two catastrophically dissonant image repertoires.

First is the standard plot used to dramatise the issues surrounding the introduction of new technology—a conflation of Frankenstein, Faust and Prometheus—dressed up in its modern form—tech noir, complete with shady political manoeuvres, manipulative suits working for the military industrial complex, the programmed long-distance violence of the Gulf War, all dressed up with backlit blue smoke, computer animations, forbidding bunker architecture etc. Pierce Brosnan's Dr Angelo is the archetypal scientist in pursuit of "dangerous knowledge", transgressing the limits of the human, impinging on the territory of the divine, underwriting it all by signing a pact with the devil (the war machine); Jeff Fahey's Jobe is the sacrificial monster he creates, alternately sympathetic and horrific, before he mutates towards the end of the plot and becomes the digital demagogue who will save humanity in spite of itself (or something).

But rubbing against this you have your basic Stephen King exercise in the suburban uncanny based around a "return of the repressed" revenge plot in which the outsider (here the simple-minded gardener Jobe) uses his (psychic) powers to take out those who previously tormented and marginalised him. Everything you expect from King is here—bad fathers, "dysfunctional" families, religious perversion, telekinesis, the reappearance of sacred monsters behind the white picket fences, everyday items turned to violent ends (e.g. Jobe's prized mower, Big Red).

Perhaps it never occurred to those behind the film, but there is no match between these two strands. Then again, perhaps they realised this but didn't care. After all, the last thing you expect from a Hollywood movie these days is coherence, of either narrative or tone. Most blockbusters seem so desperate to touch all the bases, to give every possible audience subgroup something to enjoy, they slide from melodramatic seriousness to flip cynicism, from pathos to deliberate bathos without missing a trick. Desperately preprogramming our response, they seem to want us to get into it but always offer a get out clause, in general encouraging a kind of ironic nihilism in the audience.

The Lawnmower Man is no different. It wants to deliver a sombre warning about VR, so cue pompous speechifying from Brosnan, agonising over what he has done (occasionaly finding the time to metaphorically conjure up the Promethean fires by striking a match). But just in case you're bored by this, it throws in the odd camp twist. Take Jobe's comments to the Doc, after being dosed up on smart drugs and mutating from dungareed gawp to gelled dude in a matter of minutes—"You know I think people are starting to notice the changes in me." No kidding. Once inside the virtual world, in true cyberyuppie style, Jobe tells Brosnan that he just doesn't have time for him because he "has a billion calls to make." Mh-huh. And if you really want to write the whole film off, the film has a pre-programmed p-o-v for you—Brosnan's wife, upset by his onanistic attachment to VR, stomps out of the movie muttering "It may be the future to you but it looks like the same old shit to me". (Sure enough when the film came out, the critics on the qualities delightedly seized on this, as if was some kind of unconscious giveaway, as if it hadn't been inserted deliberately).

However, **The Lawnmower Man** goes far beyond the cynical alternation of tone you expect of Hollywood these days. It's a spectacular mess, a scrambled whirl of references and ideas, accelerated beyond any stable "reading" of its subject, VR, speeding beyond the fumbling control of its clumsy director Brett Leonard. Just try totalling up the number of movies it steals from (mostly pointlessly). There's the tech noir canon (**Tron**, **Scanners**, **The Terminator**, **Robocop** etc), new wave SF like **2001** and **Altered States**, video trash (the Robo-chimp going ape at the defence lab is like an SF take on the mad monkey movie and Jobe's appearance at the garage to dispatch an ageing bully, silhouetted in his VR suit, standing next to his

lawnmower, can't help but recall the Toxic Avenger and his mop), drug panic flics, trip movies, The Who's **Tommy**, even **The Wizard of Oz** (early on Jobe seems to deliberately recall the Scarecrow who wished he had a brain). There's classic SF mythology—Frankenstein and Faust—hitched to various religious leftovers (the torments of Job, Jobe's desire to become a cyber-Christ, surely just a little out of synch with his accessing of the pagan mind). Beyond that there is the input from cyberpunk—smart drugs, computer viruses, hacker folklore (getting all the phones in the world to ring at the same time), 60s romanticism, the high tech weapons industry etc.

Actually **The Lawnmower Man** is remarkably comprehensive when it comes to VR, logging all the ideas assorted C-punks, zippies and Mondoids have superimposed onto VR since its media discovery at the end of the 80s. Perhaps the cyber-set's irritation with the movie wasn't down to the fact that it didn't take them seriously enough, but more because it took them too seriously, and in doing so exposed the limitations of the way they've conceptualised VR so far. If the film seems to deal in gonzoid stupidity, then it's down to the fact that media discussion has never really got beyond VR as sex, drugs and rock and roll.

Perhaps that's a little unfair. As **The Lawnmower Man** shuttles through its menu of possibilities—VR as head trip or mind control, the ultimate orgasm or anti-body juvenile masturbation, post acid blast or weapons' targetting system, plaything of



the liberated romantic imagination or new toy for sons of Control and the military industrial complex, purveyor of superficial vid game thrills or vehicle for techno-evolution, fast forward vision of the future or primal screen rewinding primitve ecstasies and shamanic powers long since forgotten by the West—it becomes clear that, in a way, the film's incoherence has actually been produced by the current state of VR, or more specifically, by the collective anticipation and desire which the tech has stirred up but so far failed to satisfy.

In the public imagination, if not in reality, VR is already up and running. It's broken through, opened up a space in peoples' heads. As Doc Angelo says in the film: "It's something, and we haven't had a something for a while". The attraction of VR is that it promises something more, beyond cinema, TV, drugs, whatever; a new frontier, a cyberspace race for a recession-choked, claustrophobic America. It doesn't really matter that so far the technology has failed to deliver on the hype. You could almost say it helps. It gives people the space to conceptually invent VR over and over again, chasing that initial rush. The result is a contradictory welter of ever more fantastic scenarios, from dystopian visions of multinational cyberspace and VR zombies to Terrence McKenna's theories that virtual reality will hasten the "archaic revolution" in which we recover the sacramental powers of the imagination known to primitive societies. In other words, **The Lawnmower Man's** scrambled hysteria/is a direct index of VR's current identity as millenial hardware on which you can run any number of apocalyptic software packages.

As for the whiz bang morph fest of the FX sequences—perhaps, in purely technical terms, they do define the state of the art for big screen computer animation. There's no denying that the film has the odd smart idea—e.g. the way Jobe digitally "deconstructs" some of the bad guys, turning them into a dancing molecular swirl. But overall there's a definite lack of imagination behind these supposedly awesome images. The metamorphic fractal space where most of the virtual action takes places looks like a psychedelic Smarties commercial. The final sequence of digital pat-a-cake where Jobe, would be cyber-Christ, is trying to enter the world's computer networks, but finds his way blocked by a virus is just plain silly.

The FX work best when they attempt to simulate a fast forward plunge into VR, blitzing the viewer with flash edits and vertiginously infinite zooms. It's **The Lawnmower Man's** version of a familiar buzz, an assault which literally moves you, the kind of thing big budget Hollywood movies—**Lethal Weapon 3**, **T2**, **Point Break**,—do best these days. It's beside the point that these movies don't make sense, are incoherent, don't have proper narratives, characters etc. They don't encourage old-style identification, more a

The necessity for a publisher to have a hacker/cyberpunk title has meant that what should have been an interesting title has been nothing but an exercise in repetition. But then who wants to risk money on creating an original title especially when the formula already exists! Unfortunately for DC comics great art is developed over years, as with Moore's **Swamp Thing** and Miller's **Dark Knight**, not over night at the behest of businessmen determined to cash in on the latest fad. **Jack Sargeant**



Tetsuo

Imagine David Lynch and David Cronenberg making a black and white super hero film on speed. Imagine straight businessmen mutating into hideously deformed power mad monsters battling in suburbia to wailing saxophones and industrial hardcore. Imagine sex, death and metamorphic garbage. Imagine surreal animations, gonzoid splatter and driller killer erections...

Fortunately this DIY breeding experiment need never take place in our unsuspecting world. The mutant offspring is already in our midst in the form of Japanese director Shinya Tsukamoto's **Tetsuo: Iron Man.**

The film starts with a labourer entwined in a womb of wires trying to upgrade his strength and pump iron via some homebrew surgery with a seven inch metal rod which he inserts in his thigh. Unwraping his leg later on, he discovers the self-inflicted incision crawling with maggots, freaks and runs into the street to be hit by speeding car. Cut to the inside of a metal works and a besuited businessman spasming like a short circuiting robot—thousands of volts coursing through his body, his back bubbling underneath his jacket—sweat everywhere.

T—E—T—S—U—O scrolls across the screen in a blaze of dead static. Cut with a bang to businessman shaving. He hits a resistor growing out of his cheek, stops, tries to remove it. It explodes a spattering of blood, like a huge zit gone bad. This is all within the first few minutes.

Once the characters are set up the film develops as a series of duels, with both main antagonists evolving into deranged battling monsters; one enjoying the power of the transformation and hellbent on revenge, the other trying to understand what's happening (cont. page 11)

kind of kinetic immersion in the image. One reading of this is that it's a sign that classical twentieth century cinema (which relied on identification, p-o-v, character, narrative etc) is dead.

If you want a time and place when it happened, the death throes were the disaster cycle and perhaps the introduction of sensurround sound for the Charlton Heston flic Earthquake marked the final passing away. As Charlton tried to dodge falling masonry and keep his rug on, the aim was no longer to move/involve the audience, just shake them up a bit. Since then you could argue that cinema has reverted back to its origins as carnival sideshow. Look at the amount of films described in terms of rollercoaster rides by directors and critics. Look at the way cutting edge cinematic technology is available first in film studio theme parks.

But this doesn't have to be seen just in terms of regression. Again, consider the kinds of cinema on offer in theme parks: the all-around 180/360 degree spectacle offered by Imax and Omnimax (with Horizons in Disneyworld, a four person vehicle travels across a huge Imax screen, simulating spiralling flights and plunging vertigo); George Lucas' Star Tours in which the seats buck up and down in time with the action on screen. Studio theme parks as a whole cater to the public desire to enter the film image. However you could argue that they've always been primitve experiments in virtual reality. For more on this look out for Scott Bukatman's upcoming "Terminal Identity: Virtual Subjectivity in Postmodern Science Fiction" or his essay "There's Always Tomorrowland: Disneyland and the Hypercinematic Experience".

But modern cinematic kinaesthesia literalises this and takes it to extremes. It's almost as if the film biz knows that the reflective distance of the old screen doesn't deliver any more (French theorist Paul Virilio commented on Omnimax cinema that "we can no longer separate screen from auditorium"). So they're quite happy to leave the old technology and films that make sense to special interest groups, the independents, etc. Instead they seem to be jacking up old cinema tech with a view to anticipating our eventual entry into the image world of VR. Perhaps the hyperkinetic simulations available from theme parks and modern Hollywood come closest to delivering a VR-style buzz. Seen in this light, The Lawnmower Man's claim to be the world's first virtual reality movie look as ropey and dated as its prophetic angst. The film biz has been dealing in the virtual reality buzz for quite a few years already. •

Dog beats on cat

Question: **When is a children's animated series not really meant for children? When is a cartoon in danger of inflicting real psychological damage? Answer (on both counts): When the cartoon in question is Ren & Stimpy—currently in its second series on MTV and Nickelodeon and sweeping the States like Bart-mania.**

Ren & Stimpy **is your generic 'two cute animals who are great pals, live in perfect harmony and go on great adventures together' animated series. Only problem is they aren't great friends, they don't live in blissful harmony, the trips they go on are inspired more by LSD than fun romps in the forest. Needless to say the entire series is absolutely brilliant and totally unavailable in the UK to date.**



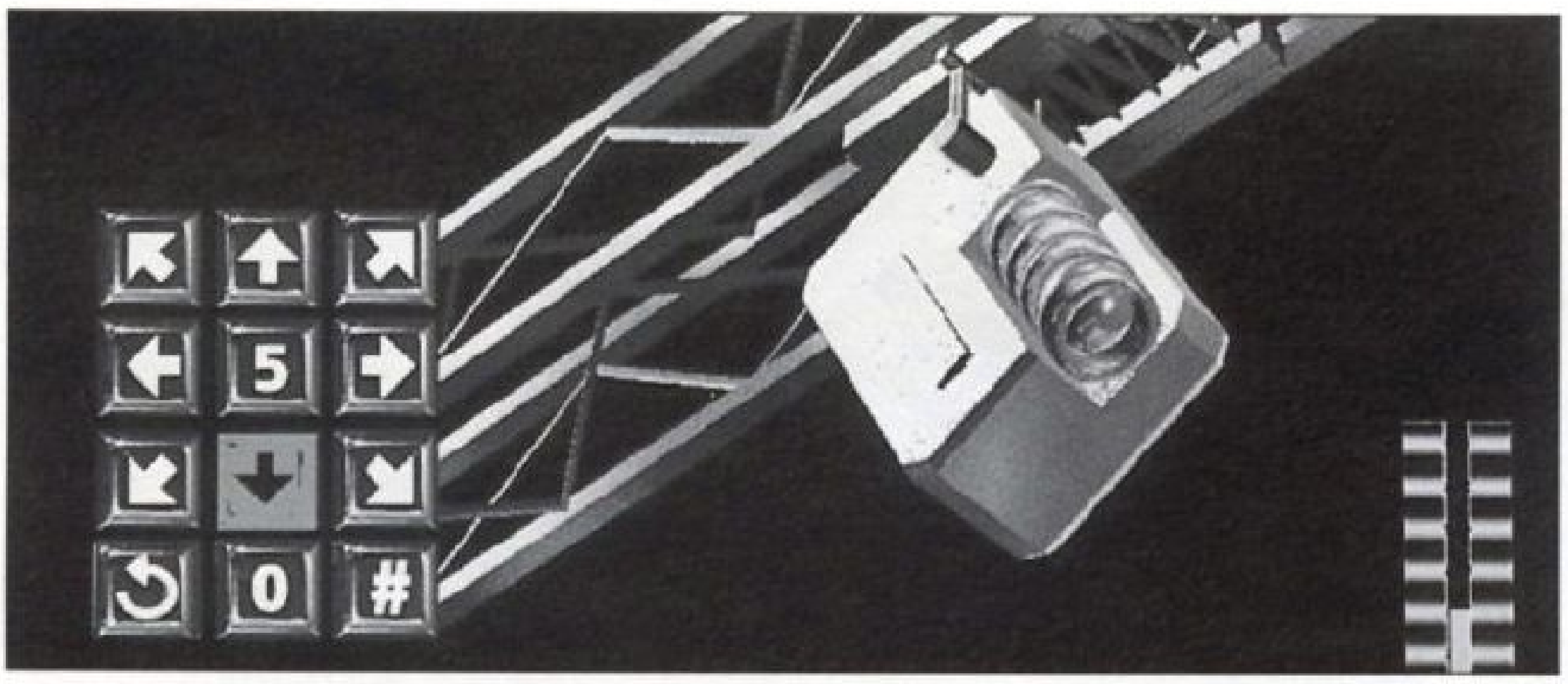
Ren is presumably a Chihuahua, a Mexican canine with the eyeballs and accent of a psychotic Peter Lore, a bossy egocentric little brat of a dog, with a schizophrenic attitude towards his companion/co-star. Stimpy is a fat little tom-cat with a wicked Cheshire Cat grin and a Pee-Wee Herman voice. Constantly at odds with each other but always making up, the cat-dog domestic love/hate relationship also has obvious latent masochistic/homosexual overtones in a kinda cross-species type of way.

The adventures usually begin with one aggravating the other or some unseen force aggravating both of them together.

Take 'Black Hole' in which Ren & Stimpy are astronauts, cruising space in a Tin-Tin style clockwork rocket. Ren is the captain, constantly keeping his Captain's Log Book up to date. Entry—"Captains Log... **Vee are fast being sucked into zee hideous vortex of zee Black Hole" (got the accent?) "... Our ship's computer suggest only one last alternative"—START SCREAMING blinks on the display. Their screams are beyond intense, like fourteen year olds freaking out on bad acid. They plummet into the centre of the void, their faces stretched and distorted by the pull of gravity. A lightning crack later and there they are standing on a surreal moon with flying toasters in the sky. Ren exclaims "We're alive!!! Alive I tell you! We're not made of wax, but flesh and bones!" (keep that accent going) Gradually the camera pans down from the mid shot of Ren & Stimpy's** Forbidden Planet **style costumes to reveal that both are minus pants but wearing baggy Y-fronts.**

Taking the initiative as captain, Ren decides to search the planet and in his best John Wayne impression tells Stimpy that they should split up. Stimpy blissfully follows Ren's orders by dividing like an amoeba, walking away in opposite directions. After initially praising Stimpy for his ingenuity, the reality of what his dear friend has managed to do hits Ren like a ton of bricks. Outstripping Roger the Rabbit in facial contortions, he screams "Pull yourself together!" To a background accompaniment of classical waltz, Stimpy 1 proceeds to eat Stimpy 2....

Already British distributors are making tentative approaches to the producers. Knowing they have a hot property with a lucrative product range in tow, they're holding out for the best offer. Guess you can't blame them. Helen Ives



Piazza Virtuale

Piazza Virtuale is said to be a special Television project running for 100 days from June to September '92 under the direction of Documenta 9, in Kassel Germany. It claims to be Europes' first interactive Television programme joining arts, media and technology from all over Europe, and from some other far flung places as well. Van Gogh TV, who are producing this extravaganza, hope to discover, through Piazza Virtuale, a way to implement new modes of communication.

Viewers can picturephone, send faxes, participate through their computers, down 'phone lines, modems etc.... On 'International Coffeehouse', TV viewers, Documenta visitors, and Piazzeta guests create the programme content. Viewers control other interactive programmes with their telephone keypad. You can even, through the Van Gogh broadcast studio, talk with media artists through a Robotcamera. Viewers can even create music with other callers for the Interactive Classical Orchestra.

There are Piazzettas, regional studios, located throughout Western and Eastern Europe. Places such as Riga and Jurmala in Latvia, and Prague in Czechoslovakia make broadcasts on a regular basis as does Vilnius in Lithuania, Ljubljana in Slovenia along with Germany, France, Italy and Switzerland.

This extravaganza is broadcast daily, from 11.00am to 12.30pm, and Friday and Saturday nights from 01.00 to 06.00am. Using the Olympus satellite, Piazza Virtuale will be connected to other European networks from 9.00am to 12.00pm. daily.

Many countries' cultural leaders are involved with Piazza Virtuale, using it as a standing platform for their arts and cultural messages. Academies and Fine Art establishments are involved and contributing to this mass communication, offering their buildings as meeting points for various parts of the broadcasts. In some eastern European countries their national TV will offer a free communication platform to citizens, artists and community leaders breaking their traditional hierarchy of TV with a 'live' satellite link to Europe. Even the Modern Art Centre in Moscow will be the meeting point for Russians who wish to join the Piazza Virtuale.

North America, Canada and even Japan, can get in on the broadcasts using ISDN technology which features colour moving pictures, image and text, over special telephone lines. In the USA, the SCOLA educational satellite network in Omaha, Nebraska, will link in North and South America. In fact, the potential for this kind of experiment is quite amazing, provided you have some kind of equipment to communicate with.

The idea behind the broadcasts is an excellent one, but, in some countries, receiving 110,000 callers in one hour, it must be incredibly difficult to get through. Also what sort of quality programming is this producing? What standard of narrative or content is within the participants grasp?

The freedom of all nationalities to contribute to this project is the fundamental positive achievement. Also the respect for and accessibility of the arts and the media in Europe is a cultural and historic necessity. Counter cultures and language need not create barriers during this kind of experiment, which uses creativity as the main form of communication.

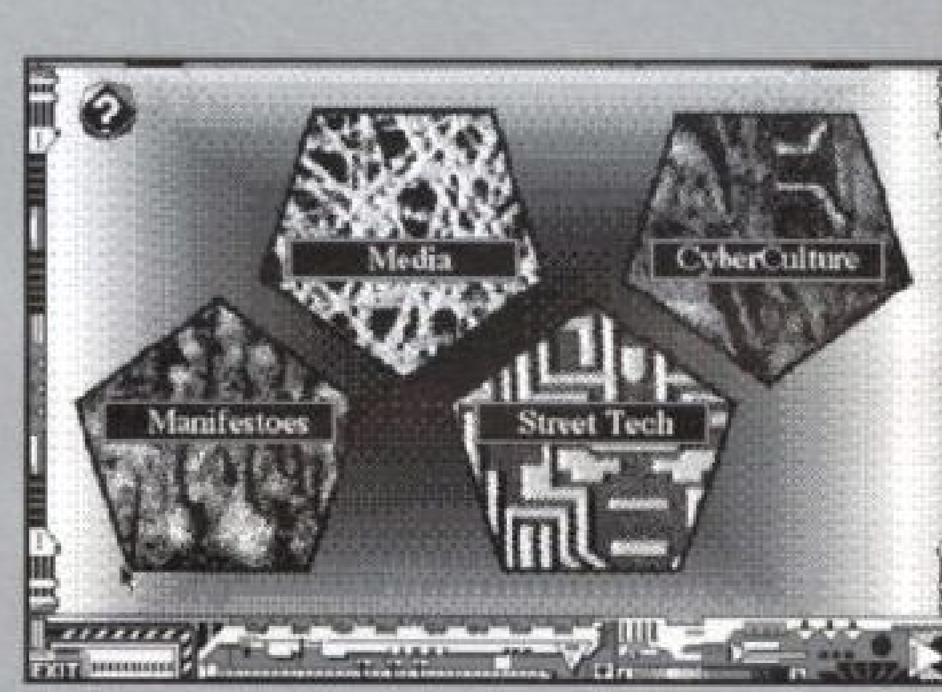
Access to the Piazza is possible from all over the world by 20 telephone lines which merge in the studio, an Art laboratory, in Kassel, Germany. These inputs from picturephones, cameras and computers are mixed by a central computer and then transmitted. A new 'user-interface' was especially designed for the project.Text, live video, computer animation, sound and music all sent by viewers from different locations, appear simultaneously on the TV screen.

Trudy Barber

to him before he degenerates into a huge mass of chrome and tubing.

Funded by Tsukamoto, who worked on commercials and videos in between filming, **Tetsuo** is the Japanese equivalent of low budget independent movies like Todd Haynes' **Poison** or Tom Kalin's **Swoon.** Put together outside the mainstream film industry, free from the nit-picking attention of suits safeguarding their own careers, **Tetsuo** manages an intensity, a relentlessness of vision which few films can match. In the canon of cyberpunk films, it's up there with Videodrome and Alien. You have to see it.

Tetsuo can be caught at the ICA and Scala rep cinemas. Released next year with Tetsuo II by Island Video



Cyberpunk Hypercard Stack

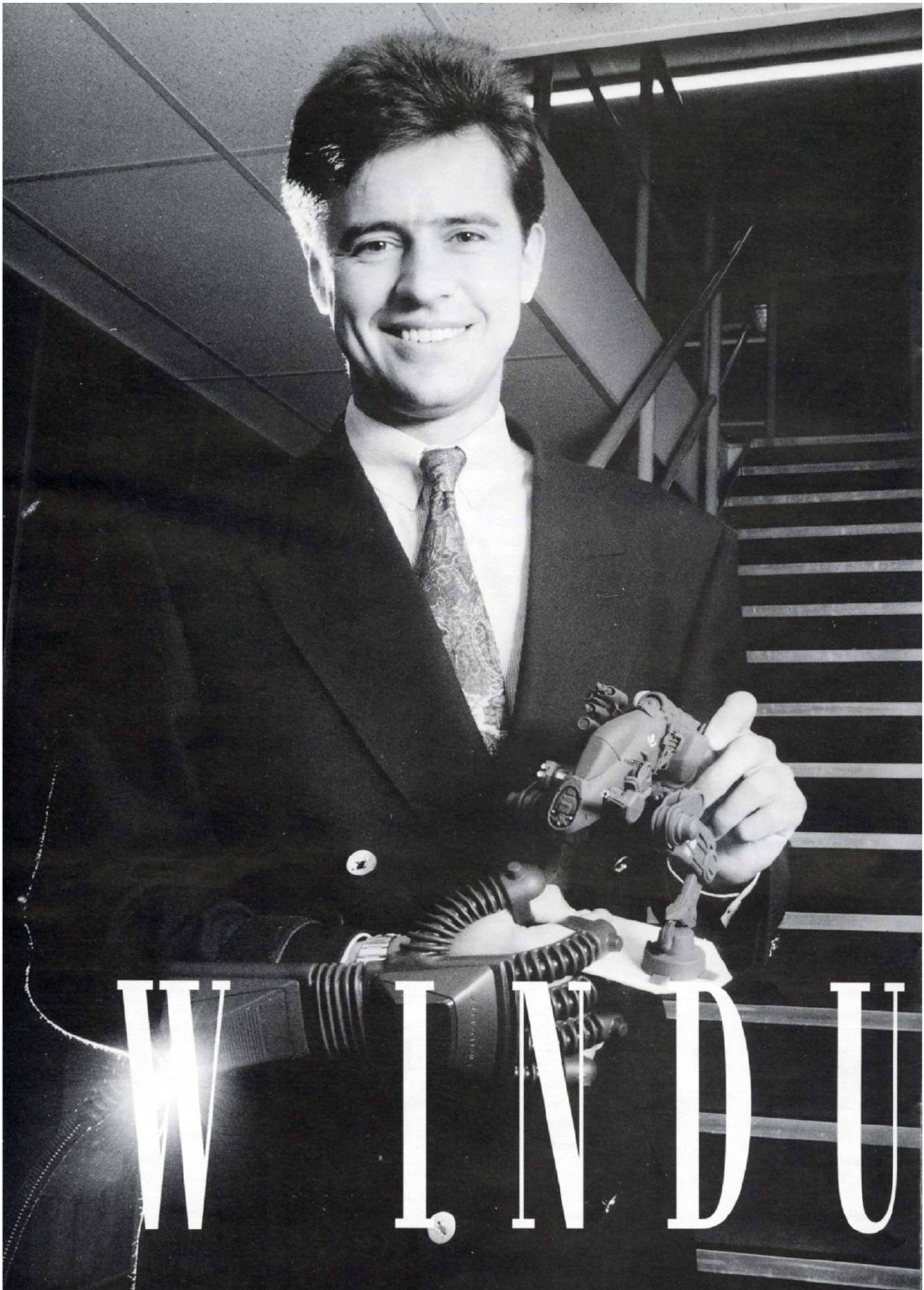
It had to happen eventually: Cyberpunks so enamoured with tools of the trade that they create a showpiece for their influences squeezing everything onto a box of black disks for the Macintosh. The result—the **Beyond Cyberpunk** Hypercard stack, a self-styled digital digest of anything and everything from fiction to theory, with vague connections to the C-word.

Perhaps the medium is the message. But beyond that **Beyond Cyberpunk** doesn't deliver much at all. Sure, some of the information is illuminating and inspiring but digging through the tortuous interface, you immediately start to yearn for the good old days when everything was printed on paper and you didn't need £1,000 worth of computer gear and a mouse to flip a page. Getting from one section to the next is about as quick and just as much fun as crossing London on the night bus without a timetable.

This is going to be a fundamental problem of hypermedia.

The interfaces will have to be intuitive, self explanatory, easy to use and transparent. Still, these are the early days yet and with some luck the creators of the **Beyond Cyberpunk** will learn how to program and design effectively before the dark future they're pining for comes to pass.

Beyond Cyberpunk is $29.95 plus $5.00 postage from The Computer Lab, Route 4, Box 54C, Louisa, VA. USA 23093. •


W I N D U

I started in Virtual Reality back in 1982 after I graduated in engineering and was working in computer modelling systems. I found them absolutely abysmal to work with. Here were designers and engineers presented with a communication medium with which they could document their ideas and could supposedly design with these systems. In reality you could only document your ideas, you're still designing on a fag packet. The upshot was you had a tremendously powerful medium in terms of three dimensional computer graphics, but an abysmal way of dealing with the creation, via a screen, through a command line interface or a window managed interface giving you several ports into this electronic sea of data and these ports were fundamentally two dimensional.

Obviously to me in those days we really needed a different way of communicating three-dimensional computer graphics and I became interested in looking at the past, what other computer scientist had looked at and what was the state of the art in man-machine interfaces. In those days – '82 – things were just starting to happen. I guess we were looking at history; '68 with Ivan Sutherland, the godfather of computer graphics at Utah, everything he went through was all being done again, and people are saying that they did it, but the reality is that Sutherland did everything from basic two dimensional drawing through to Sketchpad 1 and three dimensional Sketchpad 2 to virtual reality with a stereoscope and this giant arm. It's all been done, the guy was an absolute genius – he had conceptualised what the issues were.

So I picked up that work and, in particular, work by James Clarke who was the founding member and driving force behind Silicon Graphics. He did his thesis back in '74–78 under Sutherland, working on mathematical definitions on how to create curvacious shapes so that you can design things like cars, etc. He was doing some work with the Sutherland tool so he could design these things in space using this stereoscope. He was making some very interesting comments. At one point in his thesis he stated: 'if we were ever to design 3-D artifacts, we must have a truly three dimensional computer.' He had seen back then what was necessary, but of course the past technology was so primitive.

I put together a proposal and embarked on a Phd research program in computer science, learning all the appropriate tools – programming etc – and started to look at two fundamental things: how to digitise 3-D co-ordinates in space ie: how the computer can

Dr. Jon Waldern managing director and CEO of W Industries, wearing the Space Glove and holding model of Exorex



Virtual reality first came to the public's attention with NASA and VPL's first tentative steps into the electronic ether. Heavily reported in the press, it wasn't until W Industries was launched that the public finally got to experience what some say is the next generation after television. Black Ice interviews the man of vision who brought VR to the masses.

S T R I E S



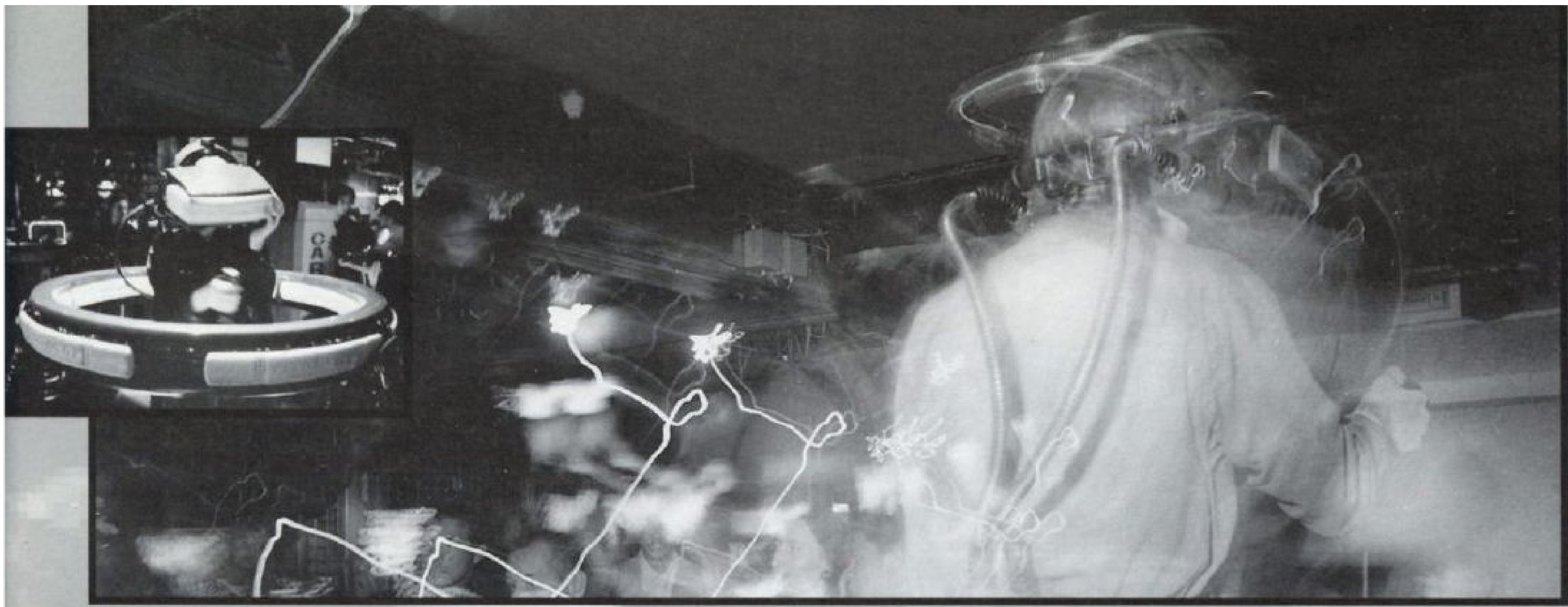
Head 4 Head (right) virtuality system in use at the Tocadero, Piccadilly, London

The 1000SD Solo (left) in production

1000SD Solo is a sit in system which can be played sigularly or connected to up to four other persons in other 1000SDs. Two control configurations available – joystick or steering wheel with the possiblity to change between them. On front of the 1000SD is an integrated colour monitor that displays the players view during gameplay.

1000CS Solo (cyberspace) is a stand up unit using the Space Joystick, which can be turned into a hand, gun or sword and allows the player freedom of 360 degree movement in the virtual world.

Head 4 Head Specially built platform designed to accommodate both 1000SD and 1000CS with a centrally mounted large monitor displaying a computer generated view that automatically switches around the playfield. More complex versions include Virtuality Destination Centre and LBE Centre (Location Based Entertain-ment).

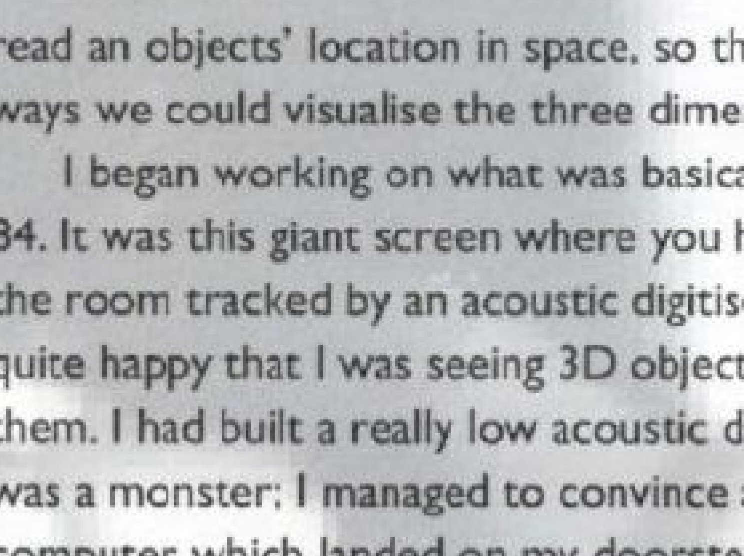


read an objects' location in space, so things could be tracked in the real world, also the ways we could visualise the three dimensional computer graphics imagery.

I began working on what was basically the first virtual reality system for my Phd in 1983-84. It was this giant screen where you had a helmet and could manipulate the screen around the room tracked by an acoustic digitiser. I did a lot of fundamental experiments, and I was quite happy that I was seeing 3D objects free floating in space and could stick my hands into them. I had built a really low acoustic digitiser in those days with a refresh rate of 1 hz, it was a monster; I managed to convince a computer company to lend me a half million dollar computer which landed on my doorstep without graphics. I wrote the micro code for the thing, it was an absolute beast. In 1985 a 1024 line display was quite an advancement. Then in 1986 the Silicon Graphics system came out and the entire thing moved on in a quantum leap.

The experiments I carried out were published in I.J.M.S. – International Journal of Man Machine studies in 1985. The results in those days were absolutely amazing. I brought in whole sections of society and was giving them little tests like "Can you see this object and if so can you touch the corners of this cube?" and "Can you see the keyhole in the side of the cube? If you can, put the virtual key in the keyhole." The shocking thing was that everyone could do it, and what we were looking at then was a potential new medium, which is now known as VR and I was keen to progress the experimental success.

Like most normal people in the UK with a good Phd, and fairly obsessively entwined with their work, I applied to the UK government to fund me on the next stage of my work. A big joke! I think the biggest joke was that I wasn't 108, didn't have a beard or spent years being stuck in lab and, of course, several books. Young ideas are the handicap of youth. It all fell on stony ground.



EXOREX: Single to four player game where you're at the controls of a giant, walking mechanised robot tank. You have been falsely imprisoned and must fight for your freedom against other opponents in this 23rd Century trial-by combat scenario. Trapped in the small city you're armed with head tracked laser canons and rockets while guided around the urban decay with a heads up map. You must destroy the other Exorex as many times as possible to win freedom.

I went on to get 50% of the whole project from industry, amazingly, and still the bloody government in the form of the Science and Engineering Council turned me down. I had seen the report on my proposal. The most pathetic excuse was given for turning it down, (you're never supposed to see these things) – typical British cover-up.

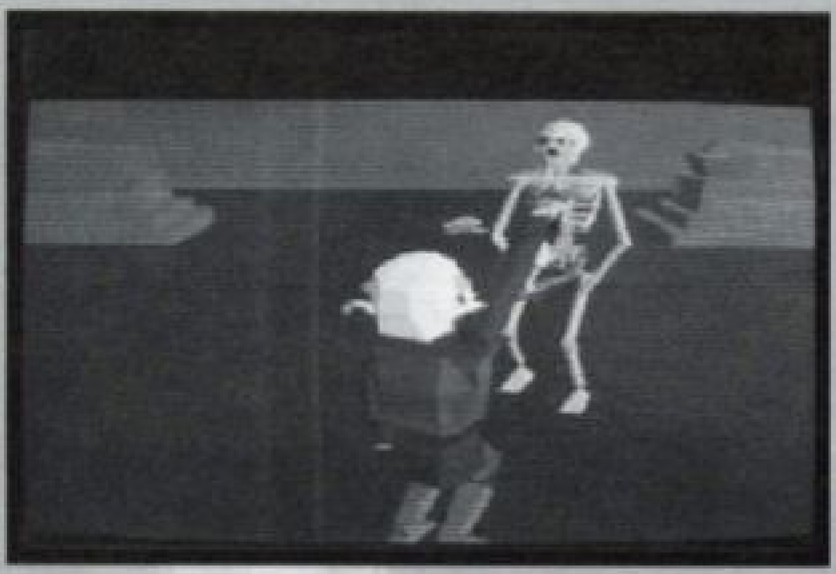
Fortunately it was for the best. After setting up a software consultancy company in '87 I formed W industries with three colleagues of mine including Terry Rowley, one of the county's top military simulation specialists. He had just built an incredible simulator for GEC Marconi but they bungled the marketing of it. It was the most state of the art machine you had ever seen; they just didn't know what to do with it, or how to market it, so he was pissed off. He was fascinated with VR, so we both came from a very strong simulation background.

Doctor Humrich was an old colleague at university and an excellent computer engineer; I invited him to join the board, heading software. Richard Holmes; an ex Rolls Royce engineer, had practised in design and development for some years as a consultant. He's well used to taking inspirations through to mass production. We had the elements of a good mixed team to bring it all together. We built the first system in my garage in '87 - '88, I won't dwell on that because it's a bit of a cliche these days. Steve Jobs wasn't the only one.

BI: What was the turning point in technology that allowed you to develop VR further from your previous hulkingly huge machines?

Obviously there were a number of developing technologies, particularly LCD screens, having a very pronounced effect on the eligibility of VR which had to be contained in a small headset/visor system. Secondly, we were playing heavily with Commodore Amigas at that point, linking five Amigas in a pseudo parallel, multiprocessor type of environment.

We could see that the prices were coming down. In those days memory was expensive, but the cost was coming down and we could see a point where we could create a multiprocessor device that would allow VR to happen. It's very processor hungry; you could never do VR on a single system. People who do VR on Silicon Graphics systems are crazy. Its a bloody



Legend Quest: Dungeons and dragons type game set in the distant land of Khelda Roth, now possessed by evil of a vengeful god. The adventure utilises the 1000CS and allows you to define your character attributes and profession (wizard, thief warrior etc) before entering the underworld. Characters can be saved on special keys for later continuation of the quest.

Computer generated camero POV of Exorex in battle

powerful graphic system but you need more downstream processing to handle the other down stream applications, like the matrix multiplications, even before the graphics are done.

We had identified that we needed a multi-processor environment, which ever way we looked at it, and that's what Expality is today. We worked on linking up these systems in a patch-work quilt, but at the end of it we had 'The Giraffe'; an arm with optical shaft encoders built in on two dimensional tracks. We were using that and proposing that in a kind of leisure activity. By that time I was looking heavily at marketing applications for the technology that we were developing. We could see obvious applications that would come on in CAD/CAM, computer graphics per se, and the traditional applications of architecture, molecular engineering plus obviously the computer aided/automated programs like animation, etc.

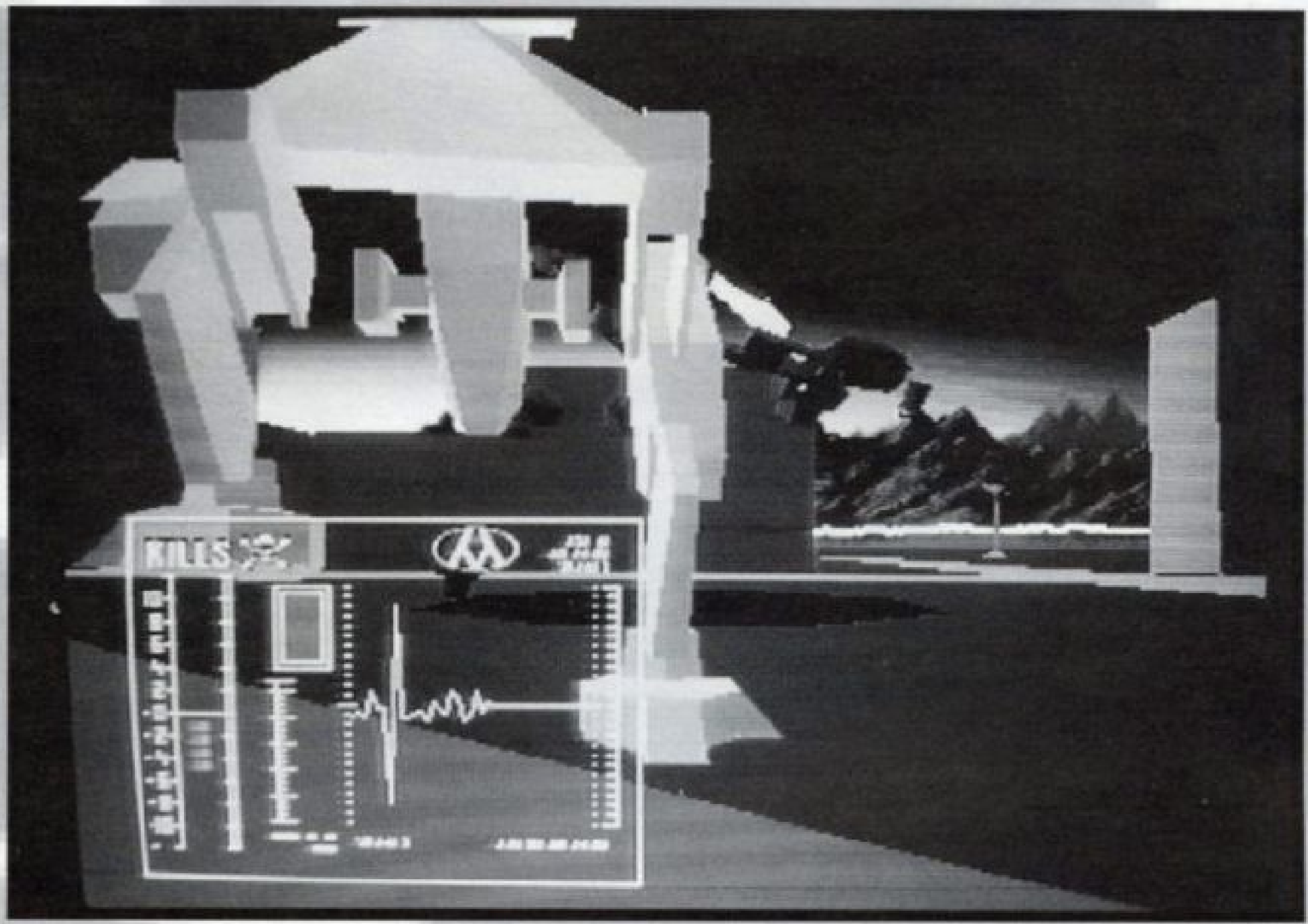
The real goal, the real potential of VR, is in entertainment because what we sat on back then was a whole new medium of convincing people that they're in a whole new electronically simulated world and doing that at price points that computer simulation never even got near. That was very exciting.

The second reason for pursuing entertainment heavily, was that everything about the consumer field was so much more difficult than in Research and Development where you can produce a glove with lots of wires hanging off of it, or an Italian diving mask with a couple of screens in the front of it. But when you get into the public arena its a whole different ball game, you have to actually design a product for a lot of different people to use, not just professionals in computer labs.

So in 1988 we said, 'right we have a prototype.' We wrote a business plan and at the same time we won a big competition in the UK for the best new product and for best new start up business, which was assessed not only by the technology, but also on the way we were looking at the market, the way we were looking at building the company and the various application domains. So a lot of thought has gone into the W Industries business plan and it has rolled since 87 and we haven't missed a beat yet.

We took the plan to market and I agreed on an option within two days of announcing our business plan with a major PLC. We sold a large chunk of equity and became part of a group for the next year. We went to ground in absolute secrecy, to develop Virtuality as you see it today. Just to tool up, to engineer a Viset, you're talking about 9 months lead time flat out just to engineer and get the injection model tooling done etc.

There is a lot of work downstream of the pure technology you see on top of it, which is actually concerned with traditional engineering, getting down, rolling your sleeves up and looking at isometrics, ergonomics, health and safety and looking at all the various implications of all the bits of technology that you have to develop to actually roll into the system. There is a lot of work needed there which we had anticipated. Of course the



beautiful thing was that in our final year, the year in which we were developing Virtuality, that young Jaron Lanier had launched VPL (California based VR developers) and was moving around the world extolling the virtues of VR, which was fabulous since were sitting back here designing and laughing our socks off since this guy was doing a year's work for us.

That was really great! He was getting everyone used to the whole thing, everybody getting very excited and understanding the concepts, which are quite abstract. So we took it right through that time and we launched the system and company in November. Tomorrow's World was the very first thing anyone had heard about W Industries. We had absolute secrecy, total cover up until that point. I'm a great believer in having something finished and working before jabbering about it. When I say Virtuality is a product we have engineered over such and such length of time, it is absolutely at the first stages, it's in its infancy and it will develop from here with good solid engineering practices and the adoption of absolutely incredible new developments in the way we get VR and the way it becomes more manageable by the general public.

BI: How was the system designed as a unit?

The system today has been designed as a low-cost starter pack. You can buy a Virtuality stand up unit – a starter pack for the researcher in college or academia for £16,500. ↠

↔ Which sounds like a great deal of money but, is not actually a great amount since you get all the bits and pieces. His deptartment can buy a machine and get on it. Good solid computing technology, absolutely robust – and can use a VGS (Virtuality Graphic System) with all the software there and just plug into it and off they go.

No, there isn't a market out there yet for VR CAD/CAM and all the other things but everyone wants to get started to try and create it. We have a lot of people purchasing the system who are porting the software onto it, looking at it, investigating it, doing all types of experiments and development with it.

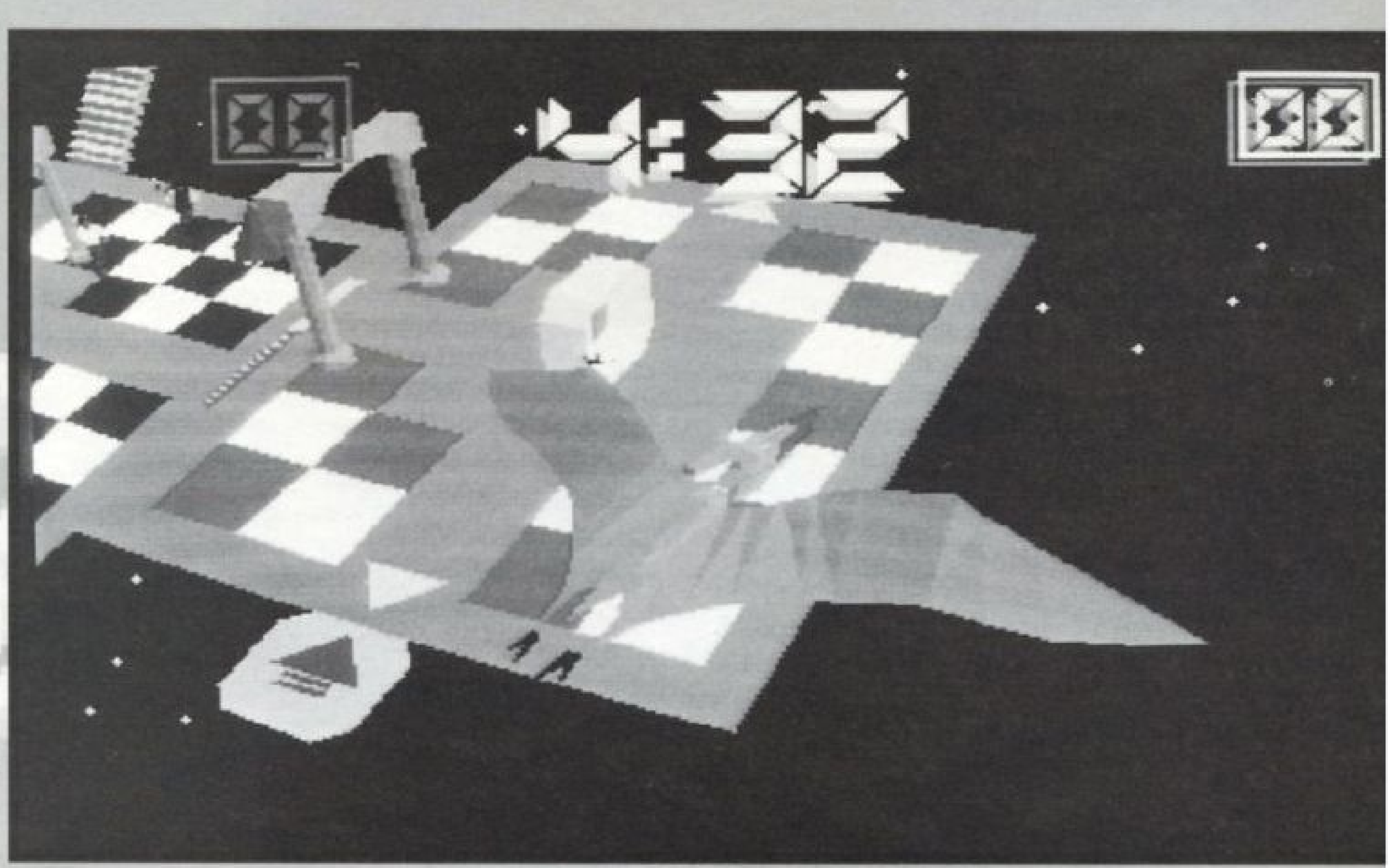
BI: Examples.

We have people in Holland developing new kinds of computer graphic displays to navigate yourself around buildings etc. Looking at the input/output, there's a big race at the moment to develop VR interfaces. Here you have a system where you have broken every rule. Look at Apple when they launched their computer in London. Half the business audience walked out because all they said, 'Christ, this is a toy. I'm not going to use this.' And now they fight billion dollar law suits over the interface. So a lot of people learned their lesson. OK so it's crude, and it's not as good as traditional sit down displays. But then if you look at things like the image resolution which is what people home into, say if I zero my view, I can turn 360^{o} and actually have a resolution in my field of view of 4 or 5 thousand pixels, effectively. So the whole point is that you can measure VR against normal computing environments, it's a whole different ball game.

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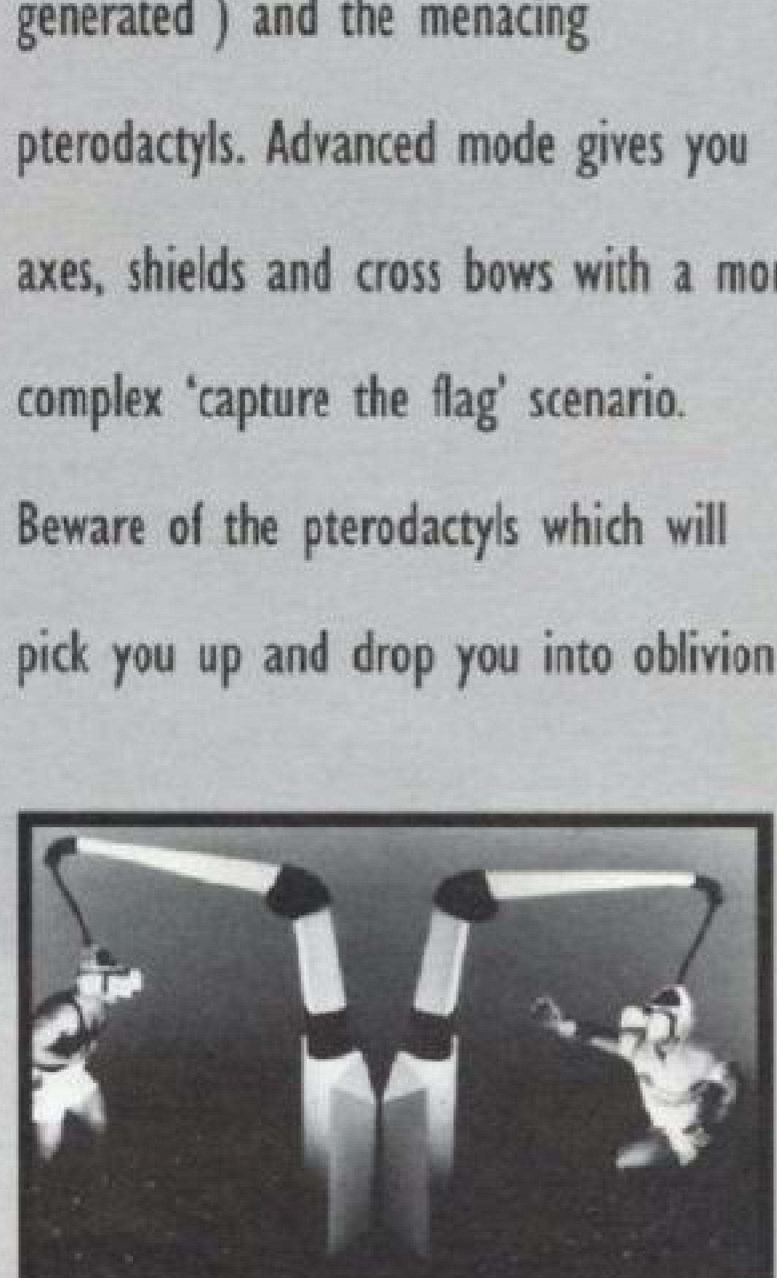
BI: Any specific companies doing research?

There's a lot of PLCs over here, British Telecom, is one, and now defence organisations. We're very supportive of defence work with this technology. Now I know VPL will not sell to defence organisations, although I have heard of quite a number that have bought their kit, are now buying ours incidentally. That quite knocked me out at the London conference. Young Zachary standing up saying, 'we don't support defence', and everyone applauding him. I knew his company had shipped to defence companies! We have no qualms about that, we're being supportive of any applications.

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There is also a need for a virtual display, where a traditional 2-D flat screen patently won't do. It's fundamentally unsupportive of the information you need to acquire. A lot of these military, scientific and commercial companies are buying our systems, putting on their own experiments, and investigations. Now we're getting people porting their software into our system. The whole way we designed Virtuality is that you can either plug in our two graphic cards, which is our cheap and cheerful graphic subsystem because it's primarily intended for the leisure market, or you can plug two Silicon Graphics cards straight into the unit.



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Expality is a VR computer. There are boards that are purpose designed; for instance format board will take any Silicon Graphic board and the video amplifiers handle the Viset, and manage the whole system. The Amiga is brilliant since it is great at input/output and has a super little sound system which we use to drive our quadrophonic spatial sound system. We haven't got a Convolvotron. We're talking about a unit that starts at £16,500 and I've

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W Industries will be shipping higher resolution screens to our existing and new customers as simple change part. In Expality we can program our chips to go right up to a 1024 x 768 resolution. We just program them on the fly to be whatever resolution we need and so with a four times improvement in the headup display, you immediately catapult yourself into an area where an awful lot more applications that are currently being worked on can be used. The whole purpose of the Viset is that you can upgrade resolution without having to throw the unit away. You just plug the modules in, since we knew the LCDs were going to change constantly.



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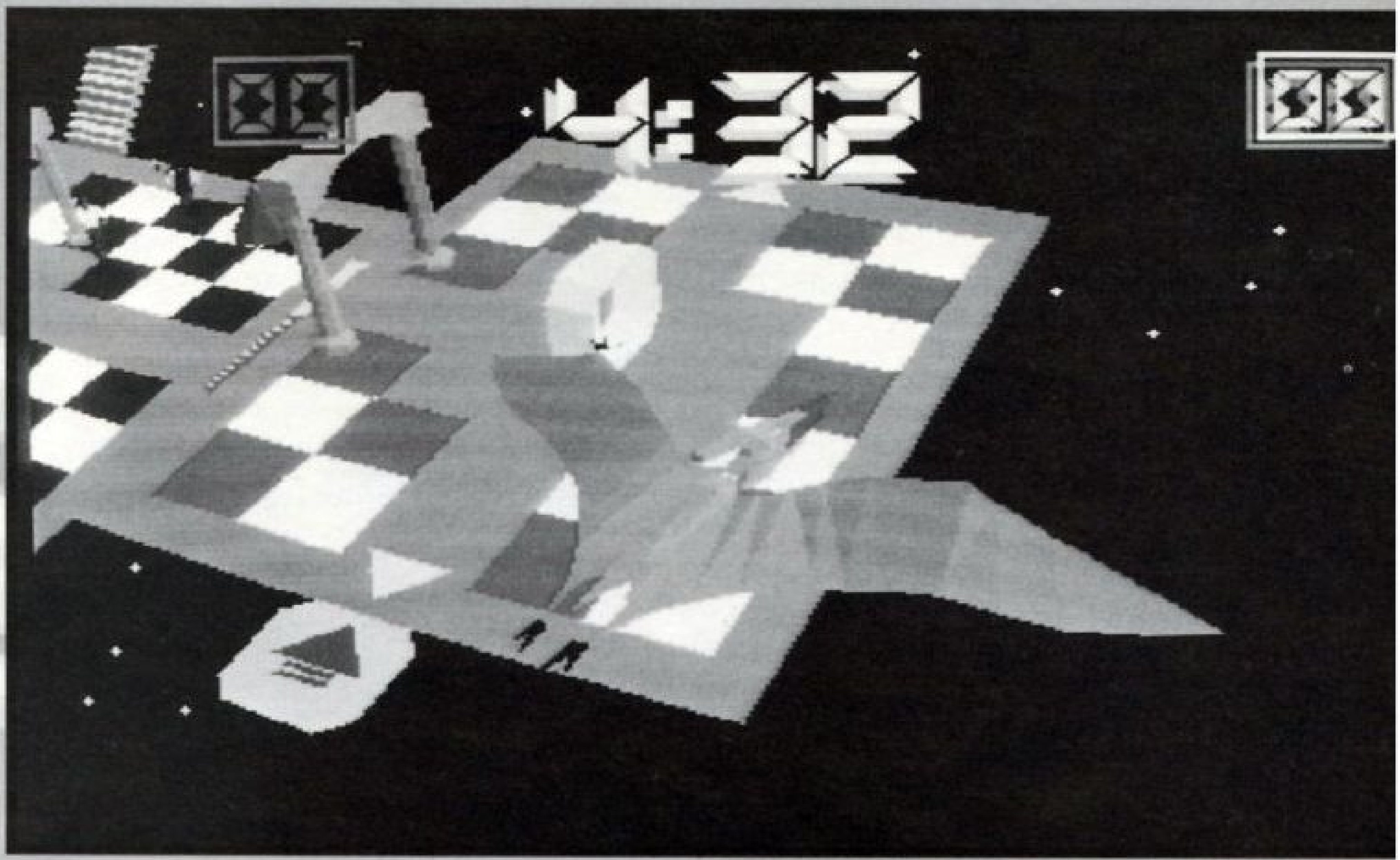
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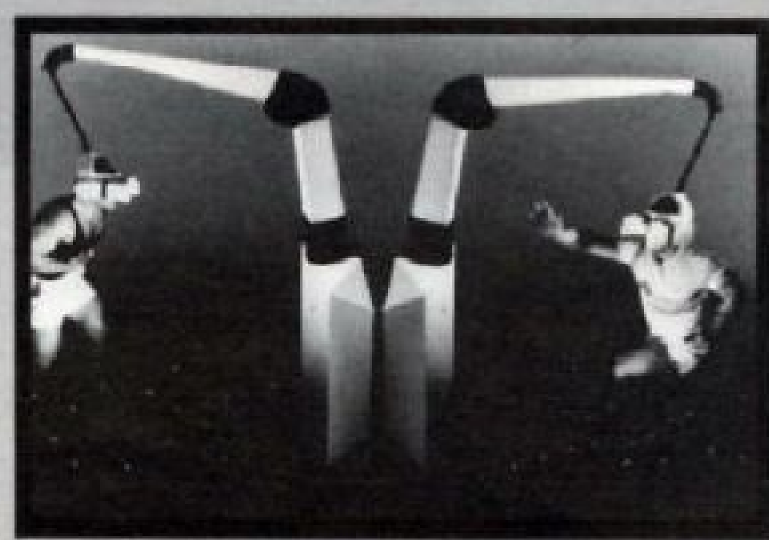
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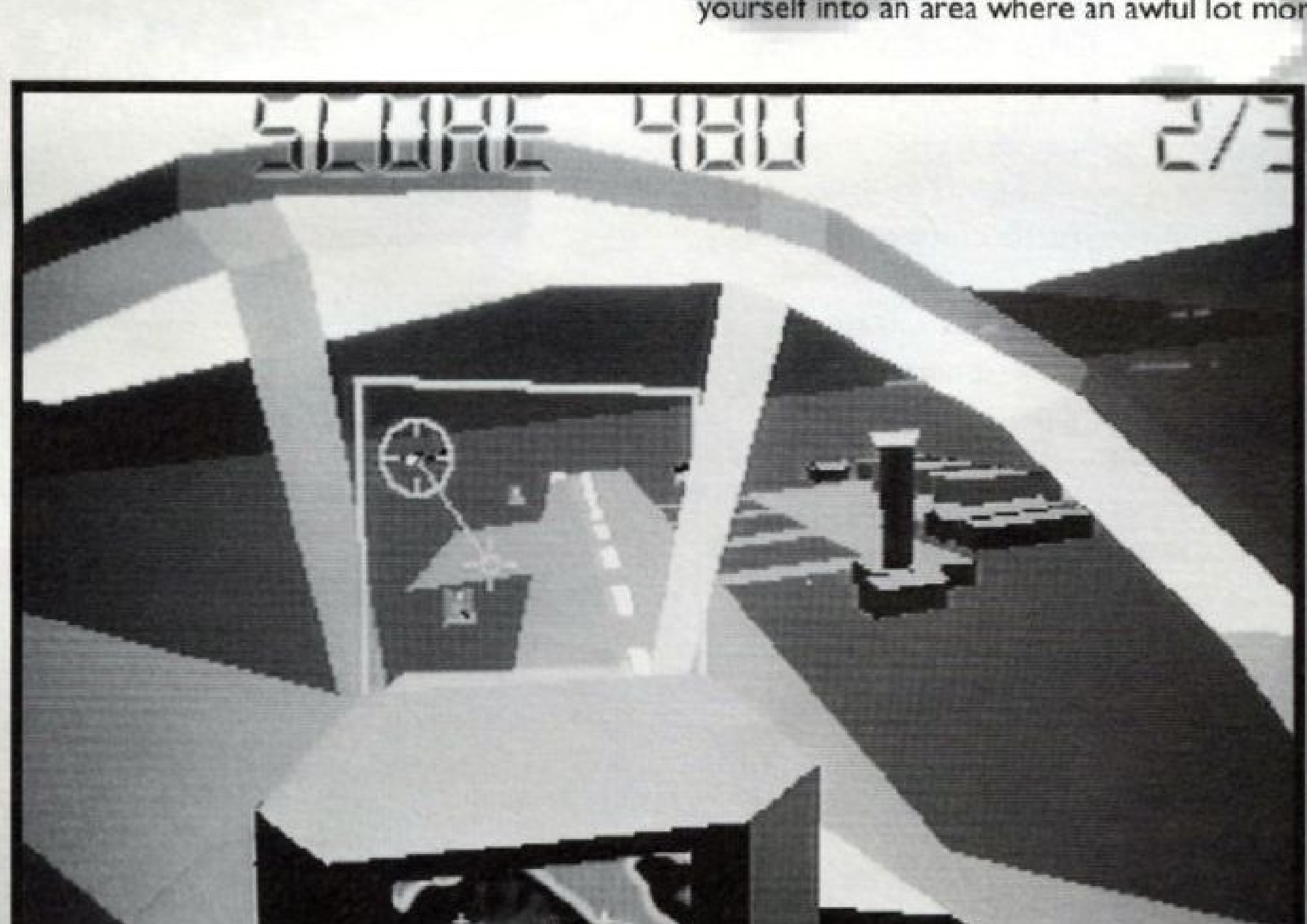
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common in the world. So in reference to adhering to standards, that's the one we saw at the time to use.

BI: Are you working with any software game companies who have already created 3-D environments for their software?

Our Virtuality games have never been done before. We have built up our own team here and we are doing some currently. What I want to do with the software teams is create a Paramount studio of VR entertainment software and that's one of the areas that we are pursuing. We do have a connection with Spectrum HoloByte in the US, who will convert their entire Electronic Battlefield Series starting with Falcon 3.0 and Avenger A-10 to Virtuality titles.

BI: One of the problems with VR entertainment that keeps on coming up is that, while you have the 3-D environment simulation that you can move around and do things in, using a film as reference, you can't have the timing, the build up tension and structure the excitement in the same way.

That's because there have been poor examples to date. Computers are unintelligent, but you can pre-define quite a lot of hooks or assessments situations within the software to allow the tension, the highs and lows in any experience to be mapped. Say, for instance you're coming out of the central bay of the mothership and you're in a tie fighter, good programming co-ordinates the orchestration and co-ordinates the tension. We also use things like subliminal heart beats. All the normal tricks of the trade, everything found in the cinema, but obviously having to write software to map what the person is doing. For instance, if he suddenly goes into a dogfight sequence and discovers his friend, we pan down the orchestration and pan up the special effects so the mind naturally focuses on the task in hand. It doesn't matter what his surrounding area is like in the craft, he's chasing the thing he has his mind and concentration honed onto. This hooks back into the database management in Animate; you can dynamically designate the resolution and detail of any of the items in the virtual world. For instance, in the dogfight example, if your Mig 21, say in VTOL, streaks overhead you quite naturally look up as it flies over you and then pull back on your joystick to pull up in a loop and barrel back to chase after him, things you could never do on a screen.

What we do in that case is we use a fractual database in Animet and we dump the resolution on the terrain, since you naturally expect the person not to be looking at the terrain, dropping it back to fourth or fifth level, and we whack up the level on the aircraft so it's up to 600 to 700 polygons, a high level of detail for us. With VR software you can't logically translate existing games into VR games. For a start the level of sophistication is infinitely higher than anything anyone had previously created.

BI: The ideas are the same.

The ideas are fundamentally the same but the point is the quality of the experience can only be borne out with a certain threshold of computer power to actually allow you to do tricks like that. Nobody can draw parallels with what has gone before and translate that into what will be, because we've gone through the thresholds, the thresholds of accepting in detail, etc. No one can say what the acceptable will be in a VR environment until they're stuck into one of our systems (because it's the only one they can go into anyway) and have flown around and been in the interactive game.

No one can tell me what you can and can't do because we don't even know yet. We're finding out all the time about what's good. We story-boarded four experiences in May of '89 that we thought would be all right in VR. We soon gave up production on all four and concentrated on one and then, by September '90, had that one pretty well there but had completely rewritten all of our story boards. We've worked on bringing all the others into line. The result of that was that we just threw away a lot of traditional genres in favour of completely new genres and, in that same breath, we had to stick with traditional ones because that's what the market at the moment wants – you gotta have the Star Wars type environment where you take on your own starcraft. You gotta have flight sim, your own motor cycle experience. But we're going to be working on some very much more abstract sorts of games that rewrite the way people interact with computer based entertainment because we have new capabilities, and they're pretty fundamental tools.

BI: Do you see your system developing in the future to the point of becoming an interface/front end to 'Cyberspace'?

Yeah, there's no question.

BI: Technically the information that comprises 'Cyberspace' is already there but we have no way to relate it to normal 'reality'.

I don't understand what Cyberspace is, I used to call VR spatial imaging until VR was a phrase that everyone had gotten used to, so we changed it to VR and marketed Virtuality back in '86. We've got the de facto name now, so I'm just happy to call it VR. Could you explain the difference between VR and Cyberspace? I don't exactly know what Cyberspace is; I know the cybermen from BBC's Doctor Who.

BI: Cyberspace is the raw data/information in computers and in networks. VR is a possible three-dimensional interpretation of that data which is easier to relate to and manipulate.

The subject area in computer science, especially in regard to human computer interface, is VR, and VR is the re-creation and simulation of reality in a natural way in terms of the traditional simulations, so that we can completely convince people that they're within that environment. We then present people with tools and methods for interacting with that environment which follows a particularly traditional analogy with conventional life, hence the VR. This is our goal, and the tools we can add to will cross-relate to the paradigms that we use in real life ie; if I want to fix up a car we'll probably have a virtual spanner to start off with and then actually people will decide 'what do we need a virtual spanner for' and we'll give them a virtual air compressed nut or something. But the point is that we're looking for a level of human computer interaction which is natural in the context of real-time simulation. If you look at what real-time simulation is to the flight industry, they fly and control their aircraft, they see a visual and it's natural. The same with the tank commander along with all the other traditional areas of simulation.

So, that's what we're recreating in a much larger context. We're aiming to provide a field of view, a spatial sound and visual environment which completely drops people in there. Psychologically they don't relate to the fact that they don't have any equipment on at all, they lose consciousness of the old environment and transcend into the virtual environment. That sounds kind of hippyish, kind of VPL like - but actually we're making that jump right now in VTOL, you can play VTOL and you really do believe that you're there. You don't believe your anywhere else other than with this **continued on page 54**



Entering the Cyberzone

Currently in production is television's first 'virtual reality' gameshow for initial broadcast in January next year.

In the new series Cyberzone, contestants are linked together via personal computers and interact with their on screen 'cyborg' counterparts with mobility stations and point and shoot guns. Teams of players from taxmen, pensioners, to the local ladies football team can combat sport celebrities and Olympic champions on equal footings in virtual reality.

The series hosted by Craig Charles of Red Dwarf fame had several problems, first was people in true VR with headsets don't look very interesting on television since their faces are normally covered. Redesigning the user interface was also need since datagloves and joysticks are also not very visual and relatively expensive. The players movements in the virtual world are now relayed to the computer via the mobility platform and instead of stereo-graphic images found in VR headsets, large screen video projectors will provide the participants with a high resolution window on the 3-D virtual worlds.

Based on Dimension's Superscape VR software for the PC - Cyberzone plays like dungeons & dragons meets the Crystal Maze with guns.

Virtual light.

Soon to be launched on the club scene is the Virtual Light system, a real time sound to light converter that displays complex graphics which can be controlled by editing various algorithms within the computer.

Already being tested at various RAVEs, the system produces star fields, chaos images and abstract computer imagery which alter and zoom towards you in a constant flow when any type of music is played into the computer. The music's sound frequency and harmonic amplitudes will alter images, colour and speed of the graphics the program is displaying but the system can be modified to specific frequencies found in the various styles of music from Rave to Judy Garland to Classical. At the same time real images can be put into the kaleidoscope of colours by grabbing a video camera's frames and then incorporating them into the background or using them as individual elements of the computer graphics.

The £12,000 PC based product will be officially launched in Early '93. Developers of Virtual Light figure that the machine will become standard in clubs in the coming years. A professional version, available for bands, will have a broader spectrum of programmability. Suggested uses include having specific machines for various instruments played so that artists can jam with the light, trying to capture specific light patterns. A number of bands including the Shamen are talking about taking it on tour in the not to distant future.

Other plans for the system include external links with standard club lighting hardware and laser light systems. Given 9 months the software will be ported over to Virtual Reality giving a 3-D version available in VR – 'serious electronic LSD'. Further plans include a form of home version to plug into a standard television.

VR eye surgeons

Areas such as space travel and architecture are already benefiting from Virtual Reality but now a recent development in Montreal, is expected to transform the study of medicine. Scientists at McGill University are building a computerised three-dimensional system that will make it possible for surgeons to experience the next closest thing to actually being inside a patient's eye while performing delicate surgery.

This unique system is called Microsurgery Robot-1 (or MSR-1) and should eventually be applicable to in many other fields of medicine such as neurosurgery, where the removal of brain tumours deep in the brain presents a great challenge for surgeons.

Project leader Ian Hunter says this advancement will allow surgeons to feel like they are inside the eye and operating directly on it themselves. They will think they are looking through a wall in front of them directly inside the eye, and be able to spot diseased regions. The high speed microrobot model being used is an improvement on earlier models built in the university's biorobotics laboratory in recent years. It will permit a higher degree of accuracy during surgery by eliminating hand tremor thus reducing the risk of eye damage. Surgeons will also be able to work more cleanly around blood vessels in the eye and remove tissue that collects on the retina.

MSR-1 is a collaboration of different scientific areas such as micro-robotics, computer imaging and machine tool-making, in their utmost state of advancement. The project will be ready for testing by the end of the year, but commercial applications will not be possible for several years.

Wearing VR headset and glove, the surgeon will see a three-dimensional view through a special microscope. The actual movement and operation of the robot is controlled by the glove commands in a far faster and accurate fashion than done by an unsteady hand. The computer will also feed back certain physical sensations being fed back by the robot which will allow him more life like interaction during the operation. While working with surgical tools the computer will show the robot's limbs as human ones.

A key element crucial to the success of the project is the it must function at a rapid speed. Psychology and neuromuscular studies at McGill conclude that this is the only way a human being can actual feel the VR experience. "This process can't be sluggish or it will wreck the virtual reality experience altogether," Hunter said.

MSR-1 also has great potential for training surgeons. Students can be hooked up to the system while instructors use it to perform surgery as remote viewers, relive previous surgeons' work and try their own hand at completely computer generated eyes. **Olga Kontozissi**

North America on Disk

Virtual Reality Laboratories Inc, of San Luis Obispo, California, claims to have brought VR imaging to the personal computer user for only US$130.

Vistapro program is a landscaping generator and is based on real data from the US Geological Survey and the

National Aeronautics & Space Administration, compiled to enable the creation and exploration of various landscapes. Users can find themselves over three dimensional canyons, lakes, mountains, valleys and can create imaginary places with features that include season, trees, rivers, snow, haze, waterfalls, shadows and waves and other geographical features.

Vistapro requires an MS-DOS personal computer with a math coprocessor, 640KB ram, 3 MB hard disk, VGA graphics and mouse. It should install under 15 minutes.

A Virtual Rumour: Home Based VR system in the Works

Rumours abound in fledgling high tech industries and the current hot one is of a home based consumer VR system being developed by Texas Instruments Inc, and Abrams Gentille Entertainment Inc. Once on the market the system will be expected to sell for just US$300 including goggle, and glove input device.

While the rumour may just be a virtual ghost in the machine, things may actually be afoot since VPL has already designed the Powerglove for Mattel for use on the Nintendo home game system. Their own Datagloves sell for US$9000. Other companies have developed add ons for the Nintendo including an inferred helmet type pointing device. Additional rumour mongers say that the system won't be true VR, but will provide the user with 3-D stereo graphics from the two screens.

W Industries however are working on a home based VR system but it is an estimated 2 years away before prices allow the system to be affordable enough for home use according to MD John Waldern (see feature interview).

Celluloid Dreams

Plans are underway for the filming of Lawnmower Man II. The first film grossed as much as Terminator II in its first weekend for a substantially smaller investment and also raised peoples hopes and interest in VR.

A further film is underway Called 'A Man, and a Woman and a Woman', and is based around plot of two people who fall in love inside a VR demonstrator.

Another approach to VR films is being employed by MCA/Universal who are developing a 'virtual theatre' that will open at the Universal Studios in Los Angles later in the year. The theatre project is a joint effort with VPL Research, developers of the Dataglove.

The Virtual Professor

The potential of VR has finally been picked up by academia with the creation of Europe's first university chair for its study.

The university of Hull has appointed Doctor Roy Kalawsky as visiting professor on VR environments and advanced display technologies attached to the department of computer science. He will lead research into the applications of VR.

Originating with a military background, Kalawsky has been at the forefront of implementing virtual worlds in the UK through his work at British Aerospace Defence Military Aircraft where he is chief engineer of specialist cockpit research and development.

"It is a multi-disciplinary topic, not just to do with computer science but also a range of computing, electronics, human factors and other topics. VR really needs to swim within all of them. But the crucial thing is that it has to move closer to the applications.' Commented Kalawsky.

Meanwhile the United Nations is adding its weight to VR's growing credibility by inviting the fledgling industry to put forward proposals to the UN trade efficiency initiative based in Geneva on ways in which the technology could contribute to improved international trade. Proposals which are accepted will be presented at the World Symposium on Trade Efficiency, to be held in 1994.

Computer Giants in VR Collaboration

IBM and Bristol based Division Ltd are collaborating to produce the first completely integrated UNIX based virtual reality system which is scheduled to become available at the end of the year.

The system called RS/UniVRS will be aimed at software vendors that want to port their applications to a virtual reality environment. The two companies believe that their system will be useful to architects using Computer Aided Design, to engineers designing mechanical system, and chemical researchers for visualising the interaction of complex molecules.

The system will be comprised of Divisions underlying DVS software being ported on to the IBM RS/6000 along with supplying special add-on boards to the IBM workstation.

VPL losses patemts

French venture capital company Thompson CSF SA has gained 20 basic VR patents from VPL Research Inc., when VPL failed to repay a series of loans made against it's patent portfolio valued at US$ 1 million. The loss of VPL's patents is a huge blow to US efforts to stay in the VR industry.

Stop Press:

Black Ice has recently finished constructing a VR sex suit or 'tele-dildonics system' for use in an ITV series on SEX to be broadcast in the new year.

Designed by Black Ice staff and constructed by Modern Armour the suit is made out of black latex with grip material, air tubing and wiring connecting the appropriate parts of the body. In the final episode of the light hearted documentary series, presenter Margie Clarke squeezes into the suit and to the opening strains of the Tomorrow's World signature tunes, starts to explain that she's going to have sex with a computer.

Unfortunately the suit was only a prototype and didn't actually work. However, Black Ice will develop a fully functioning and integrated tele-dildonic system to anyone who puts up the necessary capital.

W Industries is to play a key part in creation of the Star Trek Virtual Reality Centres in the USA. Paramount have awarded the license to build the centres to Edison Brothers, whose subsidiary, Horizon Entertainment, is W Industries distributor in the USA. Information of the plans are thin but the game being develop lets the user play Captain Picard battle the Romulan Empire.

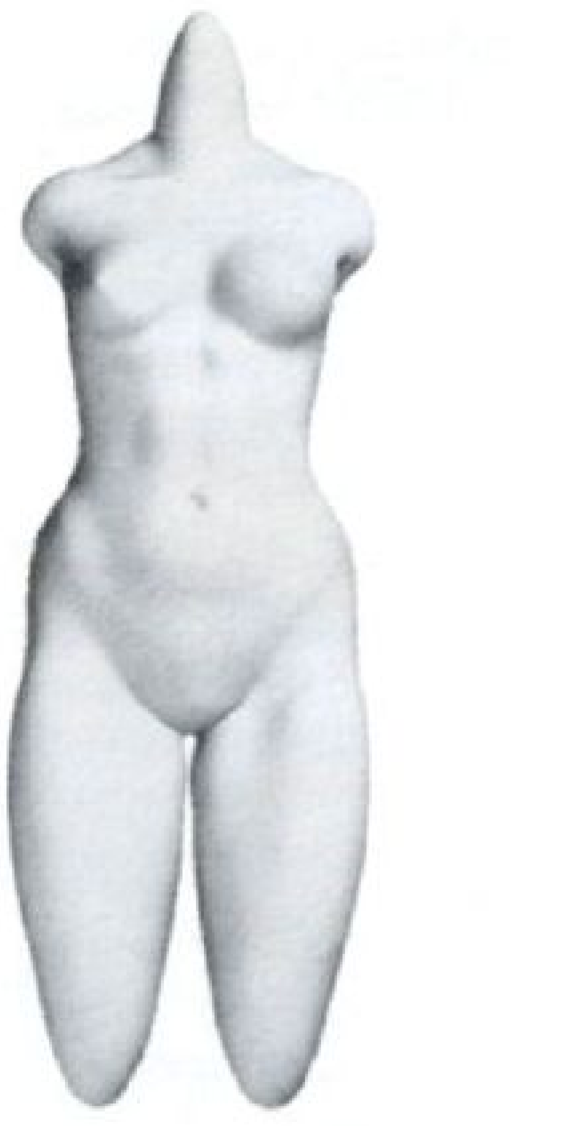
One Step Closer to Real Life.

The Meta Corporation USA has developed objects that brings life like human shapes to computer modelling with simple shapes without using the geometric primitives called polygons which are at the heart of most VR systems. Complex organisms can be created with little data.

Meta Ball's are 3-dimensional sphere is similar to a solid gas sphere that can be manipulated to create smooth joins and curved surfaces with a low number of components. When placed close proximity to each other they join and fuse together. The final constructed objects are magnified, the surface smoothness is not lost.

Work is also underway to take the Meta information and convert it to solid 3-d objects by computer controlled shearer. The software also sports an import command that will transform polygons 3-d geometric shapes into Metaball objects.

Uses to date include NHKs (Japan's BBC) series on the Human Body and Dr Metakos worlds first 100% computer generated TV personality who is a regular on a weekly music program. Illustration is made of 16 primitives.



Royal College Produces VR Designer

Royal College of Art student Sin Yong Wook has recently won prizes at the colleges degree show for an innovative vehicle design that incorporates virtual reality images as a navigation and driving aide.

Designed for the use in the Arctic, the gas turbine powered sledge can carry four passengers – or cargo – and is also capable of floating on water when the ice breaks.

Virtual Reality windscreen imaging system is incorporated as a navigation system when visibility is poor. Computer generated landscape from radar and recorded data will guide you through the densest of white outs which can last for days in the sub zero climate of the arctic circles.

The Seeds of Cyberspace

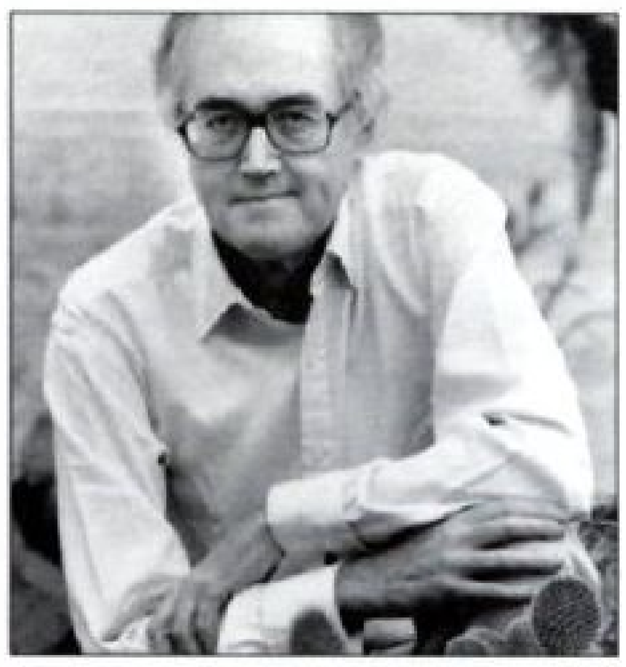
One of the most abstract concepts in this day and age is how to visualise the flow of information in the communication networks that sweep the globe.

Projecting what communication networks are carrying is now a large part of independent VR consultants work who are now developing graphical information of raw data within virtual worlds. Virtual Reality provides a more transparent technology to see the traffic and manage it effectively.

Will this be the beginning of Cyberspace? First trial realtime efforts are currently in the works, with working demos expected to be online in the new year.

VR Glove for PC's

Logitech, a leading manufacturer of mice and hand held scanners for the Apple Macintosh and IBM PC's have planned a low cost glove input device for personal computer users.



VR as Plot Development

Virtual Reality has recently become the all the vogue as plot devices in television.

The first case was Virtual Murders, a new styled detective series which was originally billed as the new Avengers for the 90's. With no sign of any VR hardware insight after several episodes, viewers were wondering where the 'Virtual' aspect of the series was to be found. By the final episode all was revealed with a death stalking a VR development firm. Using what looked liked rejects from an episode of Doctor Who, the users of this ultra sophisticated system had lasers scanning images onto the eye instead of the LCD screens, an actual idea being planned by the US Military. The VR world that the victims saw was simply created by filming a kiddie park in highly pixillated video. No prizes on how the murders were committed or how the hero turned the tables on the murder.

In the final episode of OUT the gay and lesbian programme on Channel 4, a frustrated single guy spent his time in a darkened video editing suite thumbing through four cliched interactive video experiences in search of the perfect match. Unfortunately no real or imaginary VR hardware was mounted and no contact was made.

The last and best foray into VR came from James Burke's excellent 'After the Warming' a documentary from the future that explores how the world's ecology came under threat from pollution and global warming. Situated in the 'global climatic simulation room' on par to the holodeck in 'Star Trek the Next Generation', James Burke tours history demonstrating the problems of the world that caused the global warming and the solutions that were finally implemented to save the world up until his time in the early 21st century.

Released by Island Video during the Rio Earth Summit and subsequently ignored due to environmentalism overdose, Burke's Hypermedia approach to information is thorough and always worth watching several times.



Not Quite VR

With the term Virtual Reality being used as generic catchphrase these days it's not surprising to find a dance rave music video labelled as such.

Doctor's Devious 'VR Dance in Cyberspace' has some interesting high speed flashing computer graphics but by any stretch of the definition it is not VR. However if you like pounding your face with colourful computer graphics set to a hardcore Rave music then its quite good. My flatmate was entranced and watched it at full volume for the duration of the 35 minute video.

Its likely the appropriation of the term 'VR' is likely to continue until someone starts to produce actual raves using Virtual Reality hardware and realtime graphics systems. According to Black Ice sources, this should start happening sometime this Spring.

Psychical Research: models of the mind. Virtual reality and transpersonal psychology.

This is an intriguing concept. Simple analogies of comparing the workings, thoughts and conclusion making processes of the human mind and brain with current cultural technologies of our time. Charles Tart Phd. gave a Lecture to the Psychical Research Association in London earlier this year on just this idea. He was the former president of the Parapsychological Association and has written a number of papers concerning the subject.

Using Freud as an early example of mind models, one can compare his psychologies with the technology of that time, which was the steam engine. One can substitute the Id for the steam boiler and the Ego as the safety valve etc.. The analogies using this method of thinking is straight forward and objective.

If you take the current new technology, Virtual Reality, you can create an even more interesting analogy. Using Virtual Reality as a model for the mind, you can come up with some pretty weird conclusions, or basically unanswerable questions. Consider the workings of the mind. The activity that enables us to walk, breath, scratch our nose, or smell garlic bread is all something we have in common. We all have the wet machine inside our skulls enabling us to do this, but our minds have other abilities. To imagine, to create, to think, to try and be aware of ourselves outside of our own personal bodily environment. To consider an out of body experience.

The near death experience as it is also known, is when you get a euphoric feeling, possibly travelling through a dark corridor into a bright light. To feel that you are floating on the ceiling looking down at your body. This experience has left people with a feeling of insight, a new knowledge about themselves, practically a religious experience. Once having felt this you are never quite the same again.

The mind model of an out of body experience is 'virtual reality telepresence', or a 'transpersonal experience'. Charles Tart quoted a story told by his friend. In a Virtual Reality experiment they had set up a robot. The robot had a metal arm with pincers for hands, and two television cameras for eyes. This robot was connected to the Virtual Reality set up which was also attached to the usual headset and data glove. The person wearing the kit could see through the camera eyes of the robot. When he lifted his arm, he could see the metallic pincers moving. He was the robot. His 'telepresence' was within the robot.

But, when he started to move his head around, (so the robots head was moving too,) he saw himself sitting in the chair, wearing the headset, and waving his arm around. From his teleprescence within the robot, he experienced an out of body sensation with the direct evidence of looking at himself. This was his transpersonal Ascension.

When this type of event starts to happen, it raises all kinds of questions. To think of Virtual Reality as a more sophisticated model for the parapsychology of the mind, to think of it as a way of examining our very existence, to search for the essence of 'what makes me so different from you', is surely bordering on the religious and philosophical side of human nature. Virtual reality as a model for the mind is truly relevant and exciting, but are we as ready to grasp the possible truths about ourselves discovered through these ideas, and what will happen next?

Charles Tart is also planning to develop different rides into the afterlife with the use of VR hardware. Before even dying you could try out what a Buddhist hell would be like, descend into Dante's 7 levels of damnation or the more traditional Christian Heaven. **Trudy Barber.**



Independent VR Games in Works

The South London VR design studio Virtual S are currently working on a game 'experiences' designed to run on a variety of VR platforms with future plans for a cut down home console version.

Ian Capon of Virtual S commented 'it's not going to fit into traditional video game arenas, ie it's not a total shoot them up mass slaughter, though there'll be a bit of that in it.'

The design studio is actively working with musicians and computer graphics artists that come up with good ideas for development of worlds and software in VR. 'We will sign them up as artists, people with creative ideas who can't afford £80K worth of kit to develop things in virtual worlds and if they're good enough we'll give them access to the facilities and time to develop that idea through and publish it.' If plans go according to schedule Virtual S will have a range of worlds that people can select within the space of a year.

Taking part of the VR development outside of the lab is Virtual S's software V-Script, which runs on a moderate costing fully kitted out 486 PC. This allows developers to design worlds at their leisure at home. Once the foundations are built up in a 3-D graphics program, the custom software lets you define how the objects act in the virtual world, even resetting the laws of physics if it catches your fancy.

Will any of these worlds be for the over 18 market? "We're constantly getting people asking about VR sex systems, and we're not against it, but it's not going to get developed until someone comes up with the money up front."

Watch for the announcement and details of the Black Ice & Virtual S Artificial Worlds competition in issue two.

New Headset Prototypes

The end of bulky headsets and designer Italian goggles may soon be in sight if the tests with the new head mounted displays can be made cheaper.

The new design are based on bundles of fibre optics that project images onto the inside of wide angle glasses which eliminates the need for LCD screens to be incorporated into the headsets. The two fibre optic cables run down over each ear to two Tektronix 1600x1280 lines 1 inch displays for very high resolution stereo images.

While costs of the prototype is prohibitively expensive, automation should drop the price quite rapidly and is estimated at only one year away before coming to market according to industry experts.

VR on a Budget

VPL has launched MicroCosm, an affordable VR system based on the Apple Quadra or Silicon Graphics IRIS Indigo.

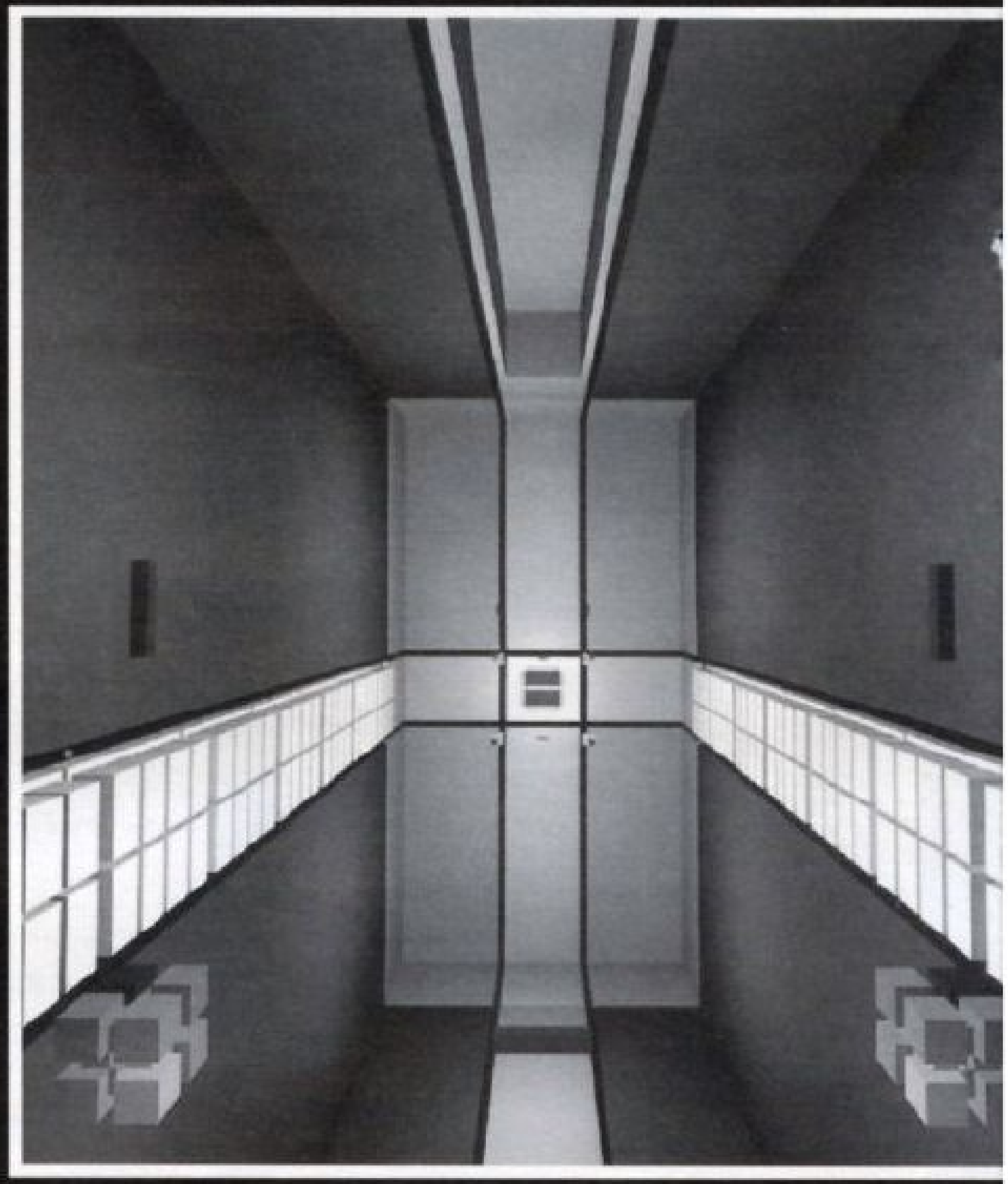
For under £5,000 or the cost of a new Scoda, users can build their own worlds in the comfort of their own home. While not a state of the art like VPL's RB2, MicroCosm has been compared to VR hardware of the late eighties. The system will be suitable for education and industrial applications where lower graphic resolution is acceptable.

MicroCosm will include all the software tools needed to design virtual worlds and will use the Eyephone XVR, Dataglove and the Swivel.

a r t i f i c i

Through the looking Glass:
Artists First Encounters with Virtual Reality.
Jack Tilton Gallery, New York.

"Basically I'm a Sculptor, but my work is computer simulated rather than real. What I'm actually doing here is a site specific work for a computer simulation of this gallery space, of which I'm creating a three dimensional model of the kind that could be put on a Virtual Reality System. The viewer should be able to enter the Gallery space and put on a headset and view a series of sculptures by someone who attempted to use the medium in a unique way."



At first, the exhibition didn't look like much. Three rooms, fairly empty. In the middle room I failed to notice the cameras that were pointed at me. The room was dominated by a very large screen with coloured images on it. Two young people with knapsacks, a male and female, were spinning and leaping about uninhibitedly. The images on the large screen seemed to change in various ways, depending on the movements of these two boisterous spectators.

A petite, dark haired woman, who turned out to be Janine Cirincione, the show's Curator, watched them with alarm. They kept coming close to a collision with a projection device on the floor, but they quietened down and wandered away. I stood watching them, slowly realising that the cameras near the high ceiling had been somehow recording their movements, and that the images I had been watching on the screen had been abstractions of their movements and the outlines of their bodies. I was looking at Myron Kreugers' Video Place, a system of at least 50 programs based on movement.





I became aware that I was hearing music. I was tired from a days work on wall street, and a long walk to the Gallery in the July heat. The space, the images, were disorienting. I didn't know what to think. I wasn't sure of what I was seeing.

I introduced myself to some gallery employees in a work area to one side of the large middle room, while I signed the guest register. Janine Cirincione offered to show me around much to my befuddled relief. This was after all, my first experience with VR.

Wearing the VR headset and glove I was able to experience artist Matt Mullicans' environment. Floating as if weightless, over an impossibly regular neat landscape, with bold colours, I travelled in the direction of my pointed finger over a series of box like houses with windows. I zoomed in through one of the windows to discover a spartan but adequate bedroom. This was a complete environment, in which I could travel wherever I liked. The strange dream like quality would not have been out of place within a Giorgio de Chirico painting, or even within a Dali like nightmare.

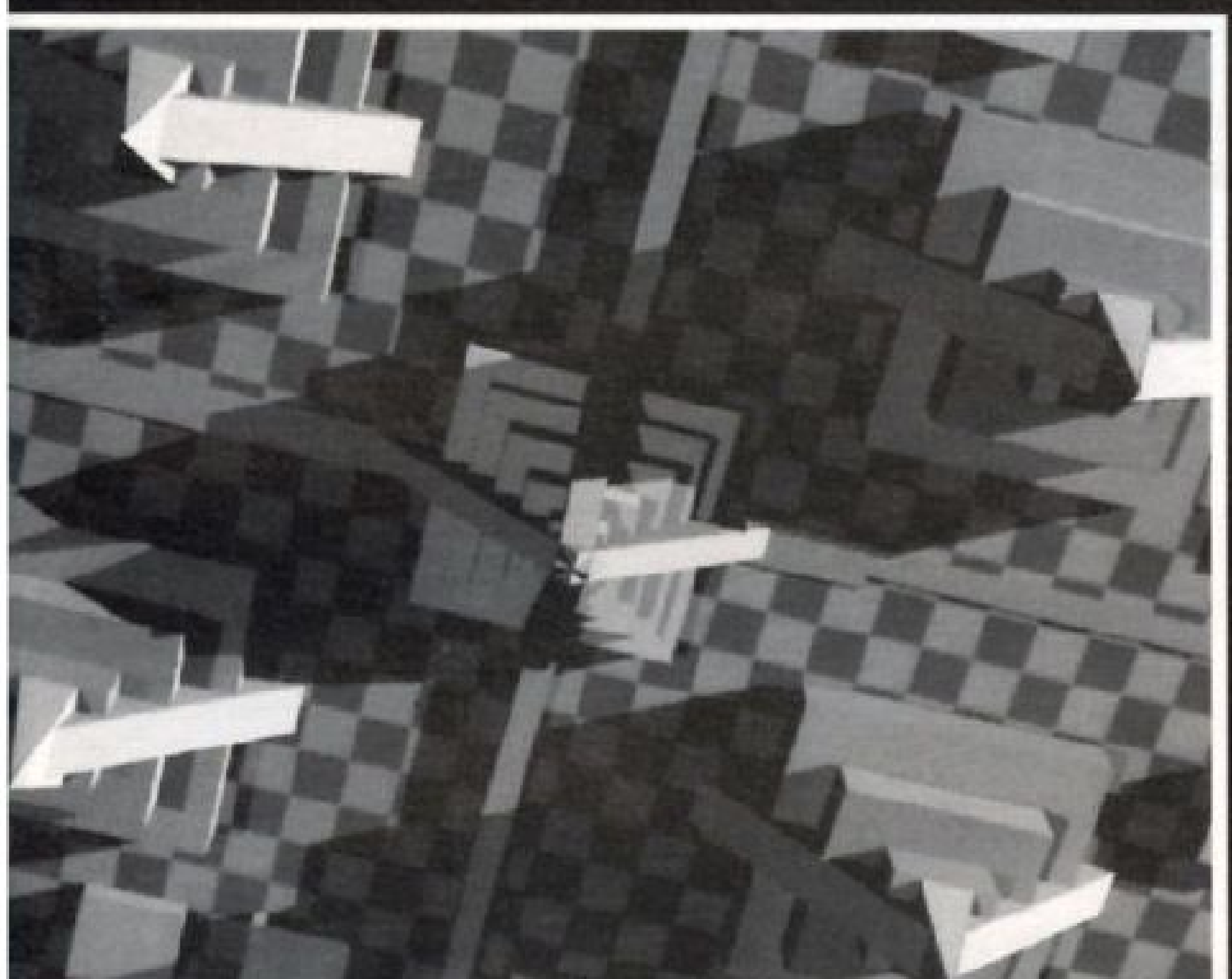


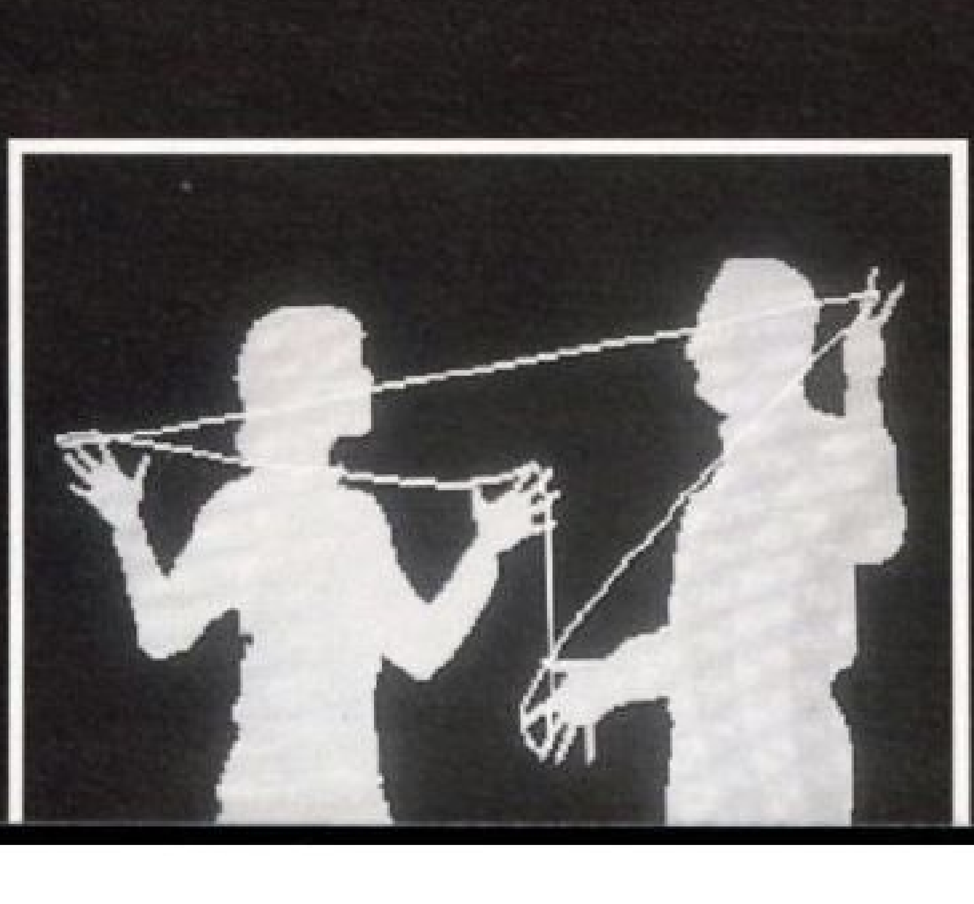
Janine then introduced me to another program. Nicole Stenger, a French Artist who has been working for a company called V.P.L. (the company that more or less invented Virtual Reality) was also exhibiting. Janine explained "This work is a video fly-through of one of Nicoles' works. This was all done on very high end computers, the kind of VR that you wear

a l w o r l d s









the goggles and gloves travelling through this environment encountering angels who would, when you touch them, direct you either to other characters or to other parts of the universe within the story. So it is completely interactive in that your experience in there will be different from mine, depending on how you relate to the other characters in there."

Janine also showed me an early video game by Jaron Larnier. I noticed that there was no violence in the game, that no one 'died'. Video arcade games with simulated wars and deaths hadn't yet been popularised at the time of this programs' creation. This was a pretty little 'world' with 'gumdrops' that 'planted seeds'.

In 'Deep Contact' an interactive video disk, allowed me to touch different parts of a computer image of a blond woman with a German accent which set off a variety of scenes that dealt with the connections between machines and the body. This project was by Lynn Hershman and Sara Roberts.

Other exhibitors and projects were contributed by: Brian D'Amato, William Gibson/Dennis Ashbaugh, Michael Joaquin Grey/Randolph Huff, David Johnson and David Wilson.

I went home that night very stimulated and excited by what I had seen. I even went back the next evening, to see it all again. I'd taken my first tentative and awkward steps into VR, and now feel privileged to have witnessed the first showing of a new and very challenging Art form.
Lisa Heskovitz

Myron Kreuger's Video Place.

Before PCs existed Myron Kreuger constructed a computer. It was a bunch of boards attached to a metal framework, with a keyboard nearby that looked like a photographic light table with a camera suspended over it was a way to communicate with the computer program. You pass your hand over the light table,and the position and the movements of your hand indicate to the computer what you would like it to do. By placing an open hand on the upper left corner of the light table, the camera perceived it from above, and a small black and white monitor promptly displays a conventional-looking English language menu, with the silhouette of your hand also on the screen. Once shown a menu you want, you point your finger on the light table, and the image of a pointing finger shows simultaneously on the screen. It is quite a disorientating experience.

The light table wasn't necessary for program selection. You could walk into the centre of the room, where other cameras could 'see' you. By extending your arm and opening your hand towards the cameras, you could get the programs to change. One program showed a city skyline. The colour of the sky turned from 'daylight' to 'night' gradually.

Another programme enabled you to draw on a huge screen by moving your pointing fingers through the air. One of the best programs, Artwheels, combined colours and music. The image on the screen, the colours, the music were all determined by your movements within the room. Movements are 'captured' by the program and repeated. The images and sounds were visually very beautiful and emotionally very moving. With at least 50 other programs within this system, you would have to keep going backtime and time again to further the experience.

Softworlds Studios.

Softworld Studios is an organisation founded by Janine Cirincione, Brian D'Amato and Michael Spertus. Softworlds was created to foster the design and development of interactive software based Fine Art Editions and Publications. They will act as technological enablers and agents to artists who are interested in developing multi media works. A catalogue is available: Softworlds Studios, 611 Broadway, Suite 718 NYC NY 10012.

THE SUN IS NOT YOUR ENEMY



STOP HISTORY

"Idleness so called, which does not consist in doing nothing, but in doing a great deal not recognised in the dogmatic formularies of the ruling class, has as good a right to state its position as industry itself. It is admitted that the presence of people who refuse to enter in the great handicap race for sixpenny pieces is at once an insult and a disenchantment for those who do."

From "An Apology for Idlers" by Robert Louis Stevenson

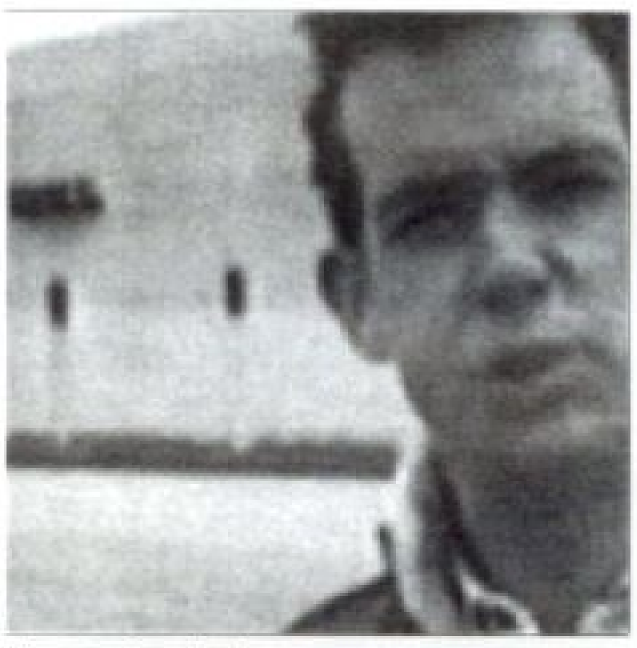
d'

Clique Maintenance The need of one generation to see the generation following it as deficient so as to bolster its own collective ego: "Kids today do nothing. They're so apathetic. We used to go out and protest. All they do is shop and complain."

"Don't credit me with too much long-term thinking on this. I just did it. It was like one voice in the desert. I had no way of anticipating all this".

by Jim McClellan

On the phone from Vancouver in Canada Douglas Coupland prickles at my suggestion that, with his debut novel, 'Generation X' (Little Brown), an attempt to catch the cynical drift of the no-future generation born between 1958 and 1970, he set out to deliberately manipulate and re-direct the media's addiction to peoplewatching and lifestyle profiles. All he wanted to do was write a book. "From around 1987, there had been the notion amongst people I hung out with that we seemed to have a pretty homogenous way of looking at the world, that seemed awfuly different from anything we'd seen presented anywhere else in the media, and it just seemed odd". So he blagged some money from a publisher on the agreement that he'd write a jokey peoplewatching guide and scarpered to Palm Springs. "We came up with the story of Andy, Claire and Dag, drifting refuseniks looking for illumination in the toxic wastelands and shrinking horizons of recession America, swapping hipster cracks and media in-jokes, on the road but with nowhere to run, beatniks minus the beat".


Douglas Coupland

It may seem hard to believe now but at first 'Generation X' (published early 1991 in the US) was greeted by indifference. d' The media, like the proof readers and the marketing department at Coupland's publishers, didn't buy the idea. Caught up in a boomer mindset, they couldn't see it and they didn't think they could sell it. "In a way it's typical. For a large part of the 80s I'd be going 'Look there's an evil yuppie' and people around me go 'Yuppie is not a word'. These assholes, I couldn't believe it. And finally 1990 they're like 'Oh sure, yuppie is a word' and there aren't any yuppies left. People are really stupid when it comes to words".

Towards the end of 1991 though all resistance stopped. People latched onto Richard Linklater's "Slacker", Nirvana and Perry Farrell's roadshow of current alternative culture Lollapalooza and something clicked. Generation X has now sold over 100,000 copies in the States. Slacker has become one of the most succesful American independent movies of recent years (it's finally due out here in December). Lollapalooza was one of the biggest tours of recent years and Nirvana we all know about. Of course there were plenty more X cultural phenomena that haven't received quite the same attention: the Apocalypse Culture documented by publishers like Amok, Feral House and Loompanics; the anti-work crusading of Bob Black, the office politics and white collar anarchy documented by the freedom fighters of the Information Age at Processed World magazine; the anti-boomer ranting of Canadian playwright/ journalist Albert Nerenberg; on a tangent, the drifting utopia and psychic nomadism, the temporary autonomous zones outlined

GENERA

by Hakim Bey in the essays collected in "T.A.Z."; so-called slacker art, the "white trash" installations of self-consciously courted chaos, luminous junk and mystical trash produced by Cady Noland, Karen Kliminik, Jack Pierson, Laurie Parsons and others.

Even Hollywood is on the case now. Cameron Crowe's Singles starring Matt Dillon and Bridget Fonda, offers MTV sociology and a grunge tie-in soundtrack as it ambles through the Seattle slacker scene. Also in the works is Bodies, Rest and Motion, starring Eric Stoltz, Tim Roth and Bridget Fonda (though how come one of the hardest working women in Hollywood made it as the Queen of Slack?), an existential romantic comedy which according to director Michael Steinberg "addresses the generation I grew up with. They're born in the 60s and came of age in the 70s and 80s. They're not yuppies but the next generation which no one talks about. They're well-eductated, media-saturated, well- traveled young people who feel sort of disenfranchised".


Xers in a café

There's almost an X consumer industry out there (are you ready for the slacker tourist circuit, taking Austin, Texas, Seattle and maybe Santa Cruz?), all targeting a generation which was supposed to be distinguished by their impatience with consumption, by their refusal to consume. And now that the media is busy mapping the movements of a generation that was supposed to have disappeared, plotting the usual lifestyle vectors, Coupland could get paid in full if he eased himself in to the alloted roles (subcultural Stanlely responsible for bringing back news of a vanishing tribe, honorary spokesperson for this newly discovered lost generation etc). He has risked the odd bit of net burn. He's done the media and even took part in a satellite link-up with Richard Linklater on CNN, But he looks at the role of spokesperson with twitchy horror.

"It's always been a personal book. It's never been a manifesto for a generation or something hokey like that. Two years ago there was no such thing as twentysomethings and I was just writing about my life. If someone wanted to relate to it, fine, but there was no feeling that I was speaking to a large population". Coupland is very itchy about all this. He starts to back off when he feels himself wandering into what he calls "definition territory". He won't sum up Xers beyond saying that "basically they would just like to get on with their lives, do what they want to do. Everyone just wants to have their own life" He flat out refuses to provide the lifestyle consumer guide – what Xers do, like, or spend their money on ("It sounds like I'm this guy who lives on a cliff and defines".). He avoids the first person plural ("We think this or that etc") and tells me he can spot sloppy journalists because it finds its way back into the copy. At one point, he even stops himself when the word generation comes up a few too many times in the conversation "God I hate that word. Let's say groups of people..."

Now obviously it's a smart career movie for Coupland to disengage himself from the lifestyle treadmill. But he's only got himself to blame if he finds himself used as a generational guru – he did use the word in the title of his novel, d³ which incidentally isn't an ironic reference to the similarly named early 60s study of teenage delinquency by Jane Devison or Billy Idol. Rather it goes back to a book on class by American academic Paul Fussell. ("The final chapter says, well what if you think class is silly, some evil European tradition that is sinking its claws into our culture. How do you get away from it? Fussell came up with what he called the X class and a lot of what he said seemed to correspond to the people I knew".)

But by trying to dismiss the idea of the generational manifesto Coupland is disavowing something distinctive about the Xers. He points that their worldview has

d³

Obscurism The practise of peppering daily life with obscure references (forgotten films, dead TV stars, unpopular books, defunct countries, etc.) as subliminal means of showcasing both one's education and one's wish to disassociate from the world of mass culture.

"Daydreaming doesn't sound very productive, but it's where many of your breakthrough thoughts come from. It's in this daydreaming state that you can imagine an ideal life for yourself or the ideal society you want to live in. Where will that ever come from if you don't give yourself room to think about it?"

Richard Linklater in "Slacker" published by St Martin's Press.

TION X

YOU MUST CHOOSE BETWEEN PAIN OR DRUDGERY

been determined by the fact they they've been raised in the world of top ten lists, game show themes, TV ads, radio jingles and political soundbites. But they've also grown up with mix-and-match lifestyle profiles and pop cultural consumer guides. They can't help thinking like that. They do it better than everybody else – Coupland's next novel "Shampoo Planet" is about 'global teens' (the generation after Generation X). At the same time they despise themselves for doing it. d[3] They know pomo cynicism can simultaneously say a lot and not very much at all. In a way Coupland hints at this with the fissured, dissonant structure of the novel, in which the hip cynical 'thought bombs' (the ghostly remnants of the lifestyle guide, definitions of X phenomena like 'McJobs', 'Bleeding Ponytails', 'Nutritional Slumming' etc) punctuate and puncture the existential drift of the story.

To the lifestyle hungry UK media, Coupland's thesis has been a godsend. As soon as they got hold of his novel, they went looking for British Xers. However, it's not clear whether Coupland's ideas translate so simply. In the States perhaps people do divide up along such clear cut lines (boomers, Xers etc). But, over here, reflecting past habits of divining infinite distinctions of class, the post-punk lifestyle menagerie became too fragmented, too contradictory, too tied into consumerist logic. Now after the post rave meltdown, all that looks pointless. (And didn't we have Xers a few years back anyway?).

EAT YOUR PARENTS

"Most people would feel insulted if it were proposed to employ them in throwing stones over a wall and then in throwing them back merely that they might earn their wages. But many are no more worthily employed now."

Paul Thoreau



d[4]

Safety Net-ism The belief that there will always be a financial and emotional safety net to buffer life's hurts. Usually parents

Diseases for Kisses (Hyperkarma) A deeply rooted belief that punishment will somehow always be far greater than that the crime: ozone holes for littering

However, if you take Coupland's book as he intended, see it as more about catching a mood, defining a sensibility, hinting at large cultural shifts rather than the micro-politics of lifestyle subcultures, then it's possible to recognise similarities. "I'm surprised it's catching on in the UK, but I'm surprised that so many people's experiences have been so close to mine", Coupland observes. "I guess I've just been trained to believe that that wasn't the case. I think we certainly live in an atomised society. A lot of the apathy you get from young people is because they don't think their voice has any similarity to anyone else's, so why bother, say nothing. Now that appears to not be the case. It appears to be eroding the forces of atomisation, which is fine by me".

Perhaps the most interesting part of the novel is what it reveals about the changing status of adolescence and youth. d[4] Much of the sensibility Coupland identifies – the inability to think of a future, dropping out, having a life rather than making long term commitments, the concern with individualism, with self-creation, the need for control over time, the feeling of apathy and powerlessness, the sense that all relationships are doomed, that outside events are beyond you, too huge to connect to – could be labelled as adolescent. In fact, Coupland's novel pinpoints the way adolescence now extends way beyond puberty. It's no longer a biological rite of passage, but a free-floating state of mind, a cultural choice. You can come on like an adolescent all the way up to your early thirties. But is this a conscious refusal, a belligerent apathy which deliberately rejects the empty choices of consumer society?

The 80s yuppie boom (in the UK) was built on an expansion of adolescence, or rather an extension of teenage consumption patterns and youth culture to a much wider age range (anyone from 16 to 35). It re-channelled from the previous generation's adolescent rebellion (the 60s liberation of desire and transgression of suburban normality) and turned it into a lifestyle package. d[4], d[3] In response, writing first in the gradzine Monitor, then in Melody Maker, rock critic Simon Reynolds looked at the likes of Morrisey and theorised a different adolescence, whose confused longing and narcisstic lack was a refusal of the productive desires of the health and efficiency of 80s yuppie culture. The essay "Against Health and Efficiency" which appeared in Monitor no. 5 in January 86 could be seen in retrospect as a seminal

d[3]

Knee-Jerk Irony The tendency to make flippant ironic comments as a reflexive matter of course in everyday conversation.

Derision Preemption A life-style tactic; the refusal to go out on any sort of emotional limb so as to avoid mockery from peers. Derision Preemption is the main goal of Knee-Jerk Irony.

"We can see the beginings of a new dissenting culture – one based around withdrawal, the failure to meet targets, ostentatious absenteeism. A new ascetism perhaps – certainly it's not overly concerned with "fun", it's not dance music. Maybe this will condemn it to perpetual exile, to powerlessness."

Simon Reynolds writing in Monitor in 1986 on The Smiths, The Birthday Party and other indie rockers ranged in opposition to the eighties yuppie leisure regime.

"In the 90s there is only one option – stop bothering. Refuse to consume.

d5

Status Substitution Using an object with intellectual or fashionable cachet or substitute for an object that is merely pricey; "Brian, you left your copy of Camus in your brother's BMW."

account of a British X culture, (though to be accurate Reynolds's "zen apathy" seems to have more in common with the neo-bohemians in Richard Linklater's Slacker).

Coupland argues that now you can't really avoid a kind of extended adolescence. "There's a lot more information to deal with now and not all of it is data base junk. It just takes a lot longer to collate and absorb all this and figure what you need. So when old people go 'Why can't young people be like we were?', the answer is that they can't because they need to know twice as much as you". [d5] In a similar vein he says that, in many ways, this generation's confusion has been forced on them. "The education system and electronic culture has worked its darndest to create millions of individuals. Post-war society had lots of money and wanted something better for its children. Kids were raised in that environment of physical and psychic abundance, but now we're back into



another recession and people are saying 'What makes you so concerned about yourself?' Well, frankly every single bit of training they've been getting for the last 25 years. Suddenly you're not supposed to think that way? I think that's hypocritical and small-minded".

As with the passionate over-consumption of the rave generation, it's hard to figure where the Xers' bummed-out self-obsession stands. It's been produced by the in-built imbalances of consumer capitalism and seems to constitute a liberating negation. [d6] But the X lifestyle of autonomy, mobility and minimum commitment – to the system, the family, the daily grind – actually fits nicely with corporations who increasingly want a migrant, disengaged freelance workforce. "These days I don't think anyone is so stupid as to think that if you love corporations, they love you back. The trend now is that employees are (a) disposable, (b) part time, (c) get no benefits. [d7] I think X types probably knew from way back that corporations were headed that way, so they didn't get too involved with them".

And everyone does their own thing and lives happily ever after? Unlikely. It seems that, to a degree, Xers have been surreptitiously co-opted by the post-Fordist, post-industrialist regime, that whether they know it or not they're on a kind of alternative career ladder. [d8] In the 50s war economy, people were drafted into the corporations, locked into a pre-programmed career path. Now with de-industrialisation and recession, that's gone. What's replaced it is the service sector and the culture industry (ads, media, art).

The former relies on a sizeable workforce ready to take up the slack during boom times, but not so involved that they'll kick up about being laid off. The latter also relies on a pool of people producing new ideas, visions and theories it can process. In other words the culture industry desperately needs the long cherished obsessions of Xers to function. On offer are higher rewards than in the

THE LOVE OF MEAT PREVENTS ANY REAL CHANGE

d6

Cult of Aloneness The need for autonomy at all costs, usually at the expense of long-term relationships. Often brought about by overly high expectations of others.



d7

Terminal Wanderlust A condition common to people of transient middle-class upbringings. Unable to feel rooted in any one environment, they move continually in the hopes of finding an idealised sense of community in the next location.

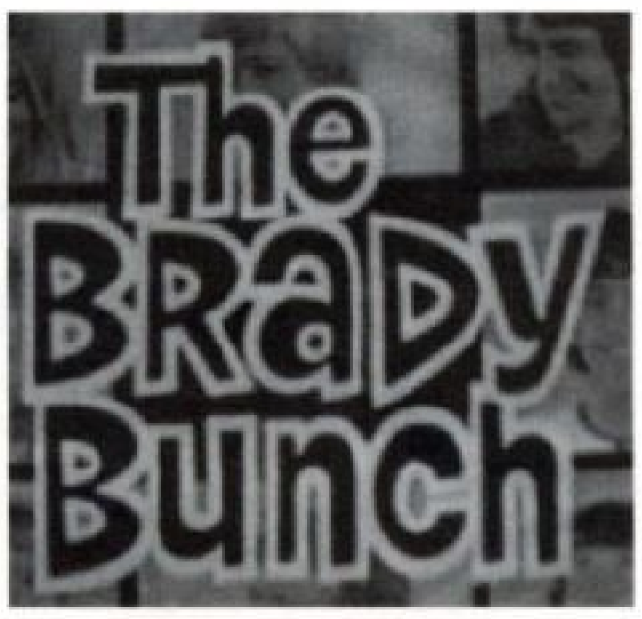
Power Mist The tendency of hierarchies in office environments to diffuse and preclude crisp articulation

d8

Air Family Describes the false sense of community experienced among coworkers in an office environment

The lifestyle game is up. Who believes anymore that you are what you buy? That to accessorise the latest status symbols is to make some kind of statement? Noone, that's who, apart from the New Times crowd, those straggling Marxist latecomers to the consumer ball gabbing on about "post-Fordist identity" and "the politics of consumption". Once everyone, even the Trendy Left, can see through the conjuring trick of consumption, it rather loses its magic."

Udo Horsman from a lifestyle piece in Arena magazine April 1990



d[9]

McJob A Low pay, low-prestige, low-dignity, low-benefit, no-future job in the service sector. Frequently considered a satisfying career choice by people who have never held one.

Squires The most common x generation subgroup and the only subgroup given to breeding. Squires exist almost exclusively in couples and recognisable by their frantic attempts to recreate a semblance of Eisenhower-era plenitude in their daily lives in the face of exorbitant housing prices and two-job life-styles. Squires tent to be continually exhausted from their voraciously acquisitive pursuit of furniture and knickknacks.

d[10]

Lessness A philosophy whereby one reconciles oneself with diminishing expectations of material wealth: "I've given up wanting to make a killing or be a bigshot. I just want to find happiness and maybe open a little roadside cafe in Idaho."

50s but less security. Lots of people plan their big strike, few make it and fewer can avoid being totally burned out and exhausted by the media's incessant demands. Those who don't make it, for whatever reason, find themselves stuck in the service sector, dreaming of managing their own burger bar.

On another level, perhaps the new generation of drop-outs with their 'zen apathy' could even be seen as a kind of cultural avant-garde, developing survival tactics which more and more will need in the future. Coupland jokes that if there is an archetypal X activity, it would be just sitting in a room, doing nothing and learning to deal with the human condition and not freak out. d[10] "People are being kicked out of corporations, who don't need workers anymore. Machines are becoming more efficient. You don't even need that many people at McDonalds anymore. Everywhere you go people are being made redundant, so the problem is free time, enforced leisure. What are people going to do with their time to make them feel that they're not just bipedal sacks of protoplasm with no transcendent value".

At one point it might have been possible to slag off the whole X thing as middle class angst. But in a way things have got beyond that. X culture is interesting because things are now reaching a crisis point. Perhaps you could argue that Xers were an invisible dissenting subculture produced by the 80s – now as things shift in the 90s they're finally appearing in the media at the very moment of their disappearance... perhaps. d[11] A lot of middle class Xers who may have dropped out a few years back in the expectation of eventually getting with the programme are now finding downward mobility is no longer a tourist trip, but a reality. In addition the recession means that more and more graduates can't find jobs, but as the infrastructure that supported the X economy in the UK d[12] - squats, the dole, casual jobs, student grants – gets dismantled at the same time, it's harder to see the freedom from work as particularly positive.

At the same time, the real psychic consequences of learning to live with post-industrial economics are becoming clearer. Take one example – freelance work in the media, which Coupland suggests is an ideal X occupation. Certainly in the 80s, this kind of work was given an upbeat reading via pieces like "Who are the Media Brats?" which appeared in The Face mid-decade. This articulated an entry-ist fantasy, suggested that a (financially/intelectually) productive life could be carved out on the fringes of the culture industry. Sharp operators could bring in new ideas, play out the theories they'd learnt at college, make a difference and make some money.

Things look a little different now. The



media still needs its brats, its smart boys and girls, and if you're prepared to pay the price you can get somewhere. But only at the risk of stagnation and burn-out. What's mostly available now is a survivalist existence, hand-to-mouth hard graft as one of the face workers of promo image culture. Of course, it comes complete with the X stuff – freedom and a degree of psychic space, an escape from the office and the 9-5 drudge – but this kind of liberation ought to be referred to as "vagabondage". All that's happened is the replacement of old style alienation with a new version, a subtle form of exploitation

EROTICIZE

INTELLIGENCE

d[11]

Historical Slumming The act of visiting locations such as diners, smokestack industrial sites, rural villages - locations where time appears to have been frozen many years back - so as to experience relief when one returns back to "the present".

d[12]

Recreational Slumming The practice of participation in recreational activities of a class one perceives as lower that ones' own: "Karen! Donald! Let's go bowling tonight! ANd don't worry about shoes ... apparently you can rent them."

"As the structure of Work/Leisure crumbles into emptiness,as all forms of control seem to vanish in the dissolution of meaning, the

which rationalises its inbuilt injustice and low rewards by pointing to the empty glamour of a "creative" occupation and the fake autonomy of freelance work, by claiming that it's only given you what you wanted all along – the X dream of freedom, mobility and creativity.

It's a melodramatic reading, but in the new, shrinking suburban culture of contentment, lines are being drawn much more sharply, choices are getting starker, barriers are going up and more people are being excluded. d13 It's becoming harder and harder to duck out of the system for a five year streetlevel sabbatical, then hop back on the consumer ride. In the long term this works against Coupland's generational logic. Soon perhaps it won't be a question of generation gaps, but the difference between those who are safe 'inside' and those taking their chances 'outside'.

Will all this cause Xers to develop politically? Can bumming around really constitute a political protest? The only contact most Xers seem to have with big picture politics is via conspiracy theory. Coupland is unwilling to write the X interest in conspiracy off as a comfortable rationalisation of inaction (it's all sewn up already, so why bother getting involved – you'll only be fucked over in the end etc). d14 He sees it as almost the natural consequence of electronic culture. "As we become more of a software and spreadsheat culture, you end up with a small percentage of the population designing those programmes and the rest of us implementing them. If I were sitting there going 'Would you like 2 McNuggets or 3 sir?', beep, push the button with McNuggets on it, I think I might feel I were the victim of some conspiracy. You'd be an idiot not to".

Of course X apathy is a protest at the kind of ideological choices on offer and Coupland remains hopeful. "There's that joke about Trotsky, who was hanging about in Prague I think, doing nothing, just drinking in the bars, a total shiftless layabout, and the joke was 'This guy is going to lead the revolution?' d15 I think Xers would be a wonderful dormant resource. There are a lot of problems but X people sometimes get more paralysed than they should. Problems are changeable. Take retro and the attitude that retro's cool. Basically you wouldn't even want to go back in time a week if you could. The present is always better than the past. Tomorrow 's always better than today. I really believe that. The sky's upside down on the cover of the US edition of Generation X. It's a reference to Chicken Little who thought the sky had fallen down but it turned out it was just an acorn. I sometimes wonder whether there's not as much to worry about as people think".

Whether Xers' obvious longing for some kind of value will find a political expression is open to doubt. d16 Talking about the strain of trash mysticism that runs through X culture, Coupland jokes that perhaps what they need is something more spiritual. "Living in somewhere like Vancouver, which is possibly the most secular city in the world, you're not left with anything other than these thousand year old religions. So if you try to make moral sense of the world you have to use what you have around you, the symbols of your time, like the space race, toxic waste, pop culture. You don't want to be shackled with all that thousand year old horseshit. In fact, why hasn't anyone come up with anything else? Someone please invent a cool new religion, because the ones we have now just aren't doing it".

A shorter version of this interview was previously published in I-D.

d13

Brazilification The widening gulf between the rich and the poor and the accompanying disappearance of the middle classes.

BENCHPRESS YOUR IQ

d14

Bread and Circuits The electronic era tendency to view party politics as corny - no longer relevant or meaningful or useful to modern societal issues, and in many cases dangerous





d15

Voter's Block The attempt, however futile, to register dissent with the current political system simply by not voting

Now Denial To tell oneself that the only time worth living in is the past and that the only time that may ever be interesting again is the future.

d16

Me-Ism A search by an individual, in absence of training in traditional religious tenets, to formulate religion by himself. Most frequently a mishmash of reincarnation, personal dialogue with a nebulously defined god figure, naturalism, and karmic eye-for-eye attitudes.

Neolithic seems bound to vanish as well, with all its temples and granaries and police, to be replaced by some version of hunter/gathering on a psychic level – a re-nomadisation. Everything's imploding and disappearing – the oedipal family, education, even the uconscious itself. Let's not mistake this for Armageddon (let's resist the seduction of the apocalypse, the eschatological con) – it's not the world coming to an end – only the empty husks of the social catching fire and disappearing."

Hakim Bey in "Ringing Denunciation of Surrealism" from "TAZ" published by Atonomedia

japanese

There's a little candy and toy store near my office. Like most other shops outside the centre of Tokyo, it opens directly onto the street, and like most older shops all over Japan, it opens from the proprietors' home. Some of the merchandise is displayed in cardboard boxes on the street; the shop has no more space than an American bathroom.

Toys and candies are displayed from kids' knee level to the ceiling. The garish, unnatural blues, pinks, lime greens and nail-polish reds of the packaging are difficult to resolve. When you first walk in you feel as if you've stepped into a Bonnard painting. Just as the behavior of children can seem alien, inexplicable, compared with that of adults, the interior of the shop is bizarre compared with the grey Tokyo exterior.

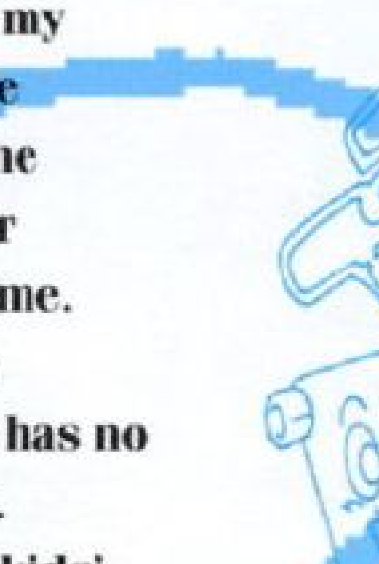
The trash at night looks like leaves fallen from some cartoon forest: dozens of garish scraps colored fingernail-polish red, chartreuse, bubble-gum pink, and wax-banana yellow flip and flutter in the evening breeze, whirl in the wakes of passing mopeds. These are the candy wrappers, and candy, not cheap toys and games, is why the kids gather in frenzy at the shop each day.

The kids run into eat this stuff, just as kids all over the world (in nations wealthy enough to support candy industries) eat sugar and flavor vehicles. Until kids started offering things to me, however, I didn't remember how strange (and loathsome) candy can be. Years of cigarettes and liquor have matured my palate, mayhap, but I find now that sweets as simple as grape-flavored chewing gum nauseate me.

I found some Japanese candy that actually made me physically sick. This fascinated me. What could be better evidence that children should be considered another species than the kind of food substitutes they relish?

We can notice a few general tendencies in Japanese candies. For one thing, mixing flavors is popular. Also, miniature simulacra of real foods seem to take well. Finally, candies that have to be mixed or put together play a large part in the market. I did decide to limit the survey a bit: I didn't include any snacks that adults are able to eat.

by Lisa Britnovic



Benberobeen

This is, bar none, the weirdest candy I have ever seen. It's going to be difficult to describe.

Take a look at the package reproduced here. The triangular character to the left actually looks like Benberobeen.

Inside the package there is a plastic tray with two flat-bottomed bowls in it. One of the bowls has a notch in the lip. There's also a small plastic cylinder bent at a 100 degree angle which looks a little like a hex wrench. Also in the package are two pouches of powder, one greenish, the other off white, and a plastic tube of golden liquid.

Take the packet of blue powder and pour it into bowl that doesn't have a notch. Next, fill the bowl to the inscribed line with water. Mix the stuff until you get a smelly syrup. Next, open the tube of liquid, and pour it in the other bowl. The yellowish fluid is some sort of sugar-syrup. Lay the bent piece of plastic in the bowl of yellow liquid.

Open the pouch of white powder. This is really strange stuff: it acts a little like silicone gel, in that it doesn't adhere to itself when it's dry: dump it on a table, and it will spread itself out nearly flat, unlike, say, a pile of sand.

The powder does adhere to things when it's wet, at least if it wetted by the yellow fluid. The next step is to pour a line of the white powder atop the liquid (as if you're pouring cocaine) and along the line of the plastic stick. At the same time, begin to lift the plastic stick up slowly. Lift it straight through the line of powder.

The powder will slide down and meld with the liquid, making a thin, transluscent, jellylike substance. Depending on how much powder you've piled on you can make a strip of gummy candy ten or twelve centimeters long.

The final step is to dip the jiggling strip – it look like nothing so much as a piece of raw squid baited on a fishhook – into the blue goo to color and flavor it. Then it's ready to eat.

Benberobeen, folks, is horrible stuff. It doesn't taste like food; it tastes more like a piece of plastic wrap inadvertandly swallowed despite the melon flavoring. It doesn't feel like food; it feels more like a fish swimming down one's throat. It doesn't smell like food; it smells more like air freshener. It sure as shit doesn't look like food; it looks more like something left over after verterinary surgery.

Benberobeen isn't however, actually poisonous. I've eaten it and still stand proud. There were no untoward effects save a slight qeasiness when I realized this thing would be going into my gastrointestinal system.
About ¥100.

Kabayakisan

Pretty strange stuff. The Japanese-English dictionary lists "kabayaki" as "spitchcock," but "Webster's New World Dictionary" doesn't have a listing for "spitchcock." From the cover photograph, it's clear that this is some treated eel flesh, however.

Open the package, and the dictionaries become unnecessary. This stuff reeks of dead fish. It's made with fish flesh, soy sauce, caramel, something sweet, and a few chemicals. It tastes like a piece of packing tape left to soak in a bucket of dead fish. I like it. Most people, one would think, probably don't like such a noisome "food." Why does it sell? It sells because in Japan, eel is "stamina" food. Manufacturer Kadou K recommends this mess be eaten at, among others, "sports time." **About ¥30.**

Pichipichigyopichan

That name is not nearly so complicated in Japanese as it is in English. "Pichi" is only two syllabic characters in Japanese, and repetition, especially in children's language, is much more common in Japanese than in English. A long, repetitive name is usually cutesy.

Certainly this candy is cutesy. The package is decorated with both a hypercute, romantic-style, saucer-eyed little girl in a school uniform and several comic characters, including school kids with slash eyes, and domesticated animals with squid eyes. The package is primarily colored pink – the principal cartoon has pink hair – and powder blue.

The candy inside the package is also cute. Actually there isn't much there: this product is closer to a toy than to candy. Pichipichigyopichan comprises five small, peach-flavored gummy candies, each formed to represent a cute cartoon character. My package had four deformed cats and a goggle-eyed goldfish. The candies are attached to a trading card on which there are pictures of the characters from the package. Also included are six opaque plastic figurines, each with two loops attached to it. Link them, and you've got a cheap – each piece is molded on one side only – charm bracelet.

The candy's taste is nothing special, a weakly peachy, somewhat sweet affair. The texture though is a little less tacky and slightly thinner than other "conventional" candies.
About ¥100.

Kombu

This is known as a traditional Japanese treat, but then just about anything that has been done, has been used, or has stood for more than 30 years or so is called traditional in Japan.

Perhaps tradiitional is, simply anything the patent has expired on. The patent on Kombu, if there ever was one, is dead now, and a lot of companies make this.

Kombu is dried, salted, sometimes flavored seaweed. It looks a little like beef jerkey: the litmus-paper-size strips look leathery, old, and near-rotten with the grey crust of powedered salt.

The taste is marine, with a rich chlorophyllic undertow riding with the dominant saltiness. A slight sweetness is detectable after the strip is bitten: Kombu tastes clean, which makes it good to eat in summer. However, it's so salty, it probably pickles the guts in a few moments. **About ¥100.**

junk food



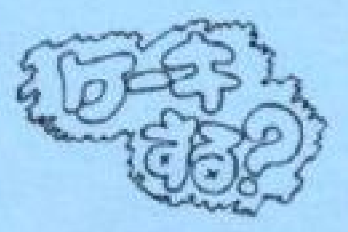
Gamu-Gatami

This is from the group I call machine candies. The "gamu" means "gum": this is a gum-making kit. The package is big and garish. The one I picked up listed three flavors inside: kiwi, peach, and banana. For no particular reason but that the finished product is cylindrical, the package is decorated with cartoons of monolithic statues of heads like the ones found on Easter Island. Other packages list similarly disgusting flavor combinations: strawberry and cream, strawberry and banana, banana and grape, and so on.

Inside the package are three envelopes of granulated gums, an injection-molded white plastic tray, and two tubes, one open ended, and the other sealed at the ends.

One cylinder is slightly larger than the other. You balance this one on its end in a round depression in the work tray. Next, you fill the cylinder to one of the inscribed tick marks with gum. After that, put the closed-end cylinder into the big tube and press down on it to compress the gum. Go through the process with all three of the gums, and you end up with a trilayered piece of dryish gum about the size of a baby's thumb. You can push it out of the bottom end of the big cylinder with the plunger. Each package comes with enough gum to make two pieces for a mouth my size. Knowing the size of Japanese portions, I'd guess that the manufacturer Kanebo says that enough for five or six pieces comes in each package.

As is to be expected, the banana flavoring overwhelms the other two. The kiwi is distinguishable, but the peach is completely dominated. The product is somewhat disappointing: the reverse side of the package is full of diagrams and tiny Japanese print and seems to promise a really strange, complicated experience. After you figure it all out, however, it's just gum. About ¥100.



Keekisuru?

"Keeki" means "cake," and "suru" can be a general verb ending that means "to make." Hence, this stuff is called, more or less, "Make cake?" as in "ya wanna make some cake?"

Inside the box are four spongey cupcakes in paper cups. (There's a warning not to eat the paper.) The icing, vanilla and chocolate, comes in clear plastic tubes precicely cut so they can be opened without the use of scissors. A small package of colored decorative sugar balls completes the set.

The instructions printed on both sides of the box are exhaustive and well-illustrated. They're unnecessary as well: it's obvious that the only thing to do is squrit the icing on and drop some candy balls on top.

The cake is tasty, though not so sweet and very airy. The icings are sweet and not particularly chocolatey or vanilla-ish. The decorative balls are almost too small to taste. A complete cake tastes fairly good though. **About ¥100.**

Urutora

Everyone's favorite cheezy live-action hero, Ultraman, is called "Urutoraman" in Japanese. (Except in combinations with "n," the Japanese never string two consonants together.) This then, is ultracandy.

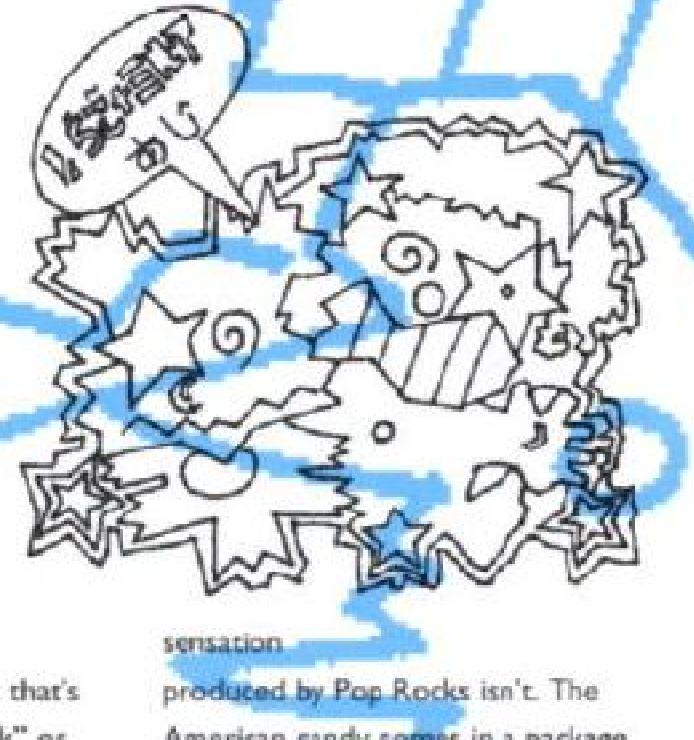
The subhead on the package reads "watapachi". "Wata" means cotton candy; "Pachi" is a kiddie omomatopoeia, a sound effect that's the rough equivalent of "whack" or "smack." From the name and the angular cartoon figures pictured on the package, it's easy to deduce that this is exploding cotton candy.

Open the package, and you'll find an ugly pad item about the size and shape of an absorbent gauze pad, one that's used to sop up pus from a particularly lively suppurating wound. Imagine a miniature roll of pink Fiberglas insulation.

Suspended in the fibrous mass are dozens of translucent, dark red chips: these are the pachi ingredients, small pieces of sugared compounds that release gasses when exposed to moisture. (That is, they explode when they get wet.) The pachi chips seem to be made of the same stuff that the American candy Pop Rocks is.

The wata, cotton, part of the candy is slightly more long-lived than that in Watagamu. Whereas the latter disintegrates into chewing-gum granules as soon as it gets wet, the cottony part of urutora lasts for a few seconds after it gets wet, melting, rather than falling apart, just like real cotton candy, into a sticky, gritty jellylike mass that can be chewed (if one doesn't have too many fillings) or swallowed.

The pachi chips begin to pop a few seconds after you put the candy in your mouth. The sensation is unnerving in a way that the



sensation produced by Pop Rocks isn't. The American candy comes in a package of tiny rocks, as it were. Eating them, it's easy to take in a little pile and shove it somewhere in one's mouth where the explosions won't hurt. The pachi chips in urutora, on the other hand, are stuck throughout the wata candy; take a bit of urutora, and suddenly there are pops and crackles throughout your mouth. You have no control: pachi chips are blowing up against your teeth, your gums, your tongue, your cheeks, your tonsils, all at once.

Your immediate reaction is to spit the whole mess out, especially because the popping at the back of your mouth hurts. It feels like it could be dangerous: what if you suddenly inhale? Will your lungs begin to explode? Will you suddenly begin coughing blood as candy shards pierce the delicate capillaries in your pulmonary system? What happens if the pachi gasses get into your bloodstream? Will your brain explode?

As an experiment, I isolated one of the pachi chips, one about the size of a pepper seed, from the urutora and dropped it into a shallow dish of water. It popped and pachied for more than five minutes before disintegrating (and, incidentally, staining the dish a deep red I had to scrub off with abrasive cleanser). **About ¥60.**



Chuka Ranchi

The Ronde company came up with this odd dish. Chuka means "Chinese." "Ranchi" is the phonetic transliteration of "lunch." In other words, this is called "Chinese lunch."

The sweets come set up in a plastic tray with three compartments, just as take-out Chinese bento (boxed meals) do.

For children there is a universal appeal in things miniature and lifelike. Matchbox cars, Barbie dolls, Beatrice Potter books, tree frogs, plastic models, charm bracelets, and the like are fascinating beyond the interest the form of the thing has. Smallness, especially if it's tied with something from the real world, as it were, at once makes anything more desirable.

Japanese children love Chinese food (or rather the Japanese take on Chinese food) because it's sweet and carbohdrate laden. Make it small, and it becomes a toy. The lid of the chuka set has an telling pun. Next to the company logo runs the line "okashi bento?" Here "bento" means "boxed meal," and "okashi" both "candy" and "strange." (Because the phrase is written in the phonetic hiragana style, rather than the symbolic kanji style, the meaning is ambiguous.)

Inside the center compartment of the box are trashfood substitutes for yakisoba (or fried buckwheat noodles, here a potato-chip-like snack) and mame (bean, here a snack of a different flavor), as well as a strip of (real) konbu.

One end compartment contains a fake sausage (a red jellybean), onions (another snack thing), sakana (that is, fish, here something called "bourou"), and a piece of Chinese man (a dumpling, here a cookie).

The other side tray has an ika (squid or cuttlefish) ring (here a biscuit), karaage (a chicken nugget, here some weird hardtack cracker like those issued in bomb shelters), and some kai (a shellfish, here something called "florette").

As awful kids' toyfood goes, Chuka Ranchi is pretty good. The cookies are tasty, and the snack things are surprisingly satisfying. Look for the package in the Western-style candies section of supermarkets or near floor level on the candy shelves in convenience stores. About ¥100.

Watagamu

The package offered no clue to what was inside besides that it was bubble gum and the flavor was "super cola". It was big, and it fairly bulged with the product inside. It looked like it should have weighed as much as a slab of hamburger, but it was only 12 grams.

A friend told me that "wata" means "cotton", "Watagashi" means "cotton candy", and knowing the Japanese style of making abbreviations by taking the first kana from each word, I deduced correctly that watagamu is cotton candy gum.

When I opened the painted-foil package, the room immediately began to reek of cola syrup. The gum reeked so strongly that I expected to see the air brown with cola gases.

Peeling the foil back further, I saw the gum itself; a flattened, light brown pad that looked like nothing so much as a dirty air filter. Its texture was nothing like any food I'd ever touched: it was eerily resiliant and slightly tacky, as if it had been dipped in nicotine resin.

Unlike cotton candy, watagamu doesn't melt when it gets wet. Instead, it falls apart. This super-cola watagamu immediately disintegrated, causing me to perform tongue gymnastics to scoop out myriad tiny pieces of gum that eventually coalesced into a chewable wad.

The product of all the intraoral manipulation was a putrid cola gum that I spat out after three or four minutes. The gum itself was good enough, but the cola flavouring nearly choked me. This stuff is worth trying if you can find natural, as it were, flavour. **About ¥60.**


S T E

LARC



In search of the next step of human evolution Black Ice found and interrogated Stelarc; Performance Artist, Man or Machine?

BI: Can you give me a brief overview of what takes place in one of your current performances and how you make it happen?

The performances are generally focussed on prodding, poking, amplifying or extending the body in some way. The earlier events included actions like three films of the inside of the body and surgically sewing my limbs and eyelids shut for a period of a week. Amplifying all the body signals continuously for ten days. Doing a series of body suspensions initially with ropes and harnesses, but later with hooks into the skin and then in the recent events, having a third hand attached to the body, an electronic hand that is controlled by the abdominal and leg muscles. The third hand is symbiotically connected and controlled while you amplify things like brain waves heart beat, blood flow, muscle signals. I've swallowed instruments to transmit body sounds from inside the body as well as making those three films. So the events generally focus on invading the body with technology, or attaching body to technology – and how that can extend the performance parameters in some way.

BI: Would you then consider technology to be like a costume to a normal performer?

I don't see technology as simply clothing any more. Technology originally proliferated as an instrument into the human horizon and then contained the body and in a sense the media can be seen as a sort of electronic clothing. Now technology has landed on the body, it sticks to the body, it invades the body, technology is incorporated into the body as a component. It's not merely a container. So to me technology becomes an intrinsic element of the machinery of the body; its no longer simply something that's worn or something that inhabits the human horizon.

BI: Is this all "off the shelf" equipment?

A lot of the tech is off the shelf stuff or stuff I try to get access to, with varying degrees of difficulty. The third hand was made to my spec but based on a prototype developed by a Japanese university. So its not a totally innovative engineering design, but you won't find another third hand anywhere. It just depends, I make do with what I can get and make. For example in recent performances, the left arm is involuntarily jerked around by a pair of muscle stimulators so the left arm of the body is automated to preprogrammed movements as compared to the body controlling the arm in real time. But I use conventional medical muscle stimulators to do that, so what's important to me is the art not the technology.

BI: How do you see your art impacting on your viewers or society at large?

In a sense the events where never designed for an audience. The early sensory deprivation events, physical stress situations, were almost done in private or in galleries with few visitors. Of the 27 suspension events done, only 5 or 6 were public performances. The amplified body events generally have been public events – simply because of the cost of putting them on – and often because of being invited to overseas events. But to me the performances could very well occur without anyone watching them at all. In fact the word performance is a very bad word describing the thoughts, events and actions which are often one-off, often improvised live by the body.

BI: Experiments?

In a sense they are but they aren't pseudo-scientific experiments. I think though that it is important with what we call "performance art" that the experience is as important as the expression and often people aren't required to witness that. It's a difficult one to answer. It's never structured simply for people to watch them. They're not meant to be entertaining. I don't resort to strategies designed to suck in and manipulate people's emotions. If the performances are dramatic or if they involve sound and light and interactive video installations, it's to do with the interplay of the human with the machine, it's the sort of notion of what the person can directly experience. The idea of the third hand is meaningless for me without actually making the third hand, attaching it and, over a number years, performing with it. So the experience is equally as important as the expression.





BI: What devices do you have hooked up to yourself and how do they work in a performance?

There were a series of suspension events; amplifieds and ones with the third hand. The last performance was in an abandoned monorail station in Yokohama. The body (Stelarc's) had a remote control in its left arm which activated its up and down motion. The third (robotic) hand was activated by control of the leg and abdominal muscle's signals. Amplified body events were also used; electrodes stuck on the scalp to pick up the EEG or brainwave signals, an ECG heartbeat amplifier and a number of channels of amplified muscle signals. These were are all electrical signals which needed to be modulated to produce sounds. Then there was the blood flow of the radial artery on the right wrist that was amplified; that was done with an ultrasound transducer. So a beam of ultra sound was bounced off the blood flowing past the radial artery and the doppler shift was acoustically amplified. There was what's called a "kinetic angle transducer" which measures the bending motion of the limbs and that was amplified as a sound signal. A pair of muscle stimulators produced involuntary motions in one of the limbs.

At the Stockholm electronic music festival recently there were about twelve channels of body signals and sounds and about four channels of interactive lighting to control and choreograph live. In Tokyo there were an additional four channels of live video that had to be controlled. So the body per se in the early suspension events had to contend with physical difficulty. Now it's coping more with technological complexity and that's probably the difference in the two.

BI: How do you practice or rehearse for something like this?

The thing to realise is that I don't think or do what you call rehearsal. First, that theatrical term applies to one producing a performance by practising and literally scripting the theme — and it's then presented to people wrapped up, perfect. And that's just not the case. Certainly it's very difficult initially to get the equipment together and generally the only time I can test the parameters of the performance is when all the technology is wired up to the body. It's generally the night before or the day of the event. So the event literally becomes a sort of live improvisation, an online sort of event. I don't use sampling for example. Everything that you hear, everything that you see, everything that you would experience, is the experience the body is going through for the first time under those those hardware parameters.

BI: Something I've noticed is the terminology you use; you referred to 'it' and 'the body' in an unpossessive way. Can you explain why you speak that way?

I don't really feel that the performances have to be my particular body. It is not of any consequence to any one particular individual or personality. For me what's important is that for the last 2,000 years of our human history we have been prodding and poking the body, trying to psycho-analyse the self, whereas what's now important to me is no longer the self but the structure of the body. What is important is to no longer see the body as an object of desire, but as an object for redesigning. For me the premise is that if you alter the architecture of the body you alter the body's awareness of the world and that's what's intriguing.

We're at the end of philosophy because our physiology is obsolete.

BI: Changing the input changes the software.

Yes, it may seem a rather mechanistic view of the body but to me the ultimate parameters of the body are the physiological ones and without altering the sensory input one cannot have a significant new cerebral direction. Now the other thing to point out is that I'm not talking about the body in a Cartesianal/Platonic split of body and mind. When I speak of the body as I have been doing, that's the total "behavioural repertoire" of this creature. As I consider mental phenomena as part of those processes and as inextricable processes, there is no reason to separate them.

BI: Do you then see the body as a tool?

I don't actually see the body as a tool. It's objectifying it to a point where there's a body that is a medium and I think it's very difficult in terms of our human history to recognise the human body in its totality without the fragmentation that language results in. In fact, perhaps our philosophical desire for things like harmony and truth are the result of our sensory inability to perceive the world in its totality.

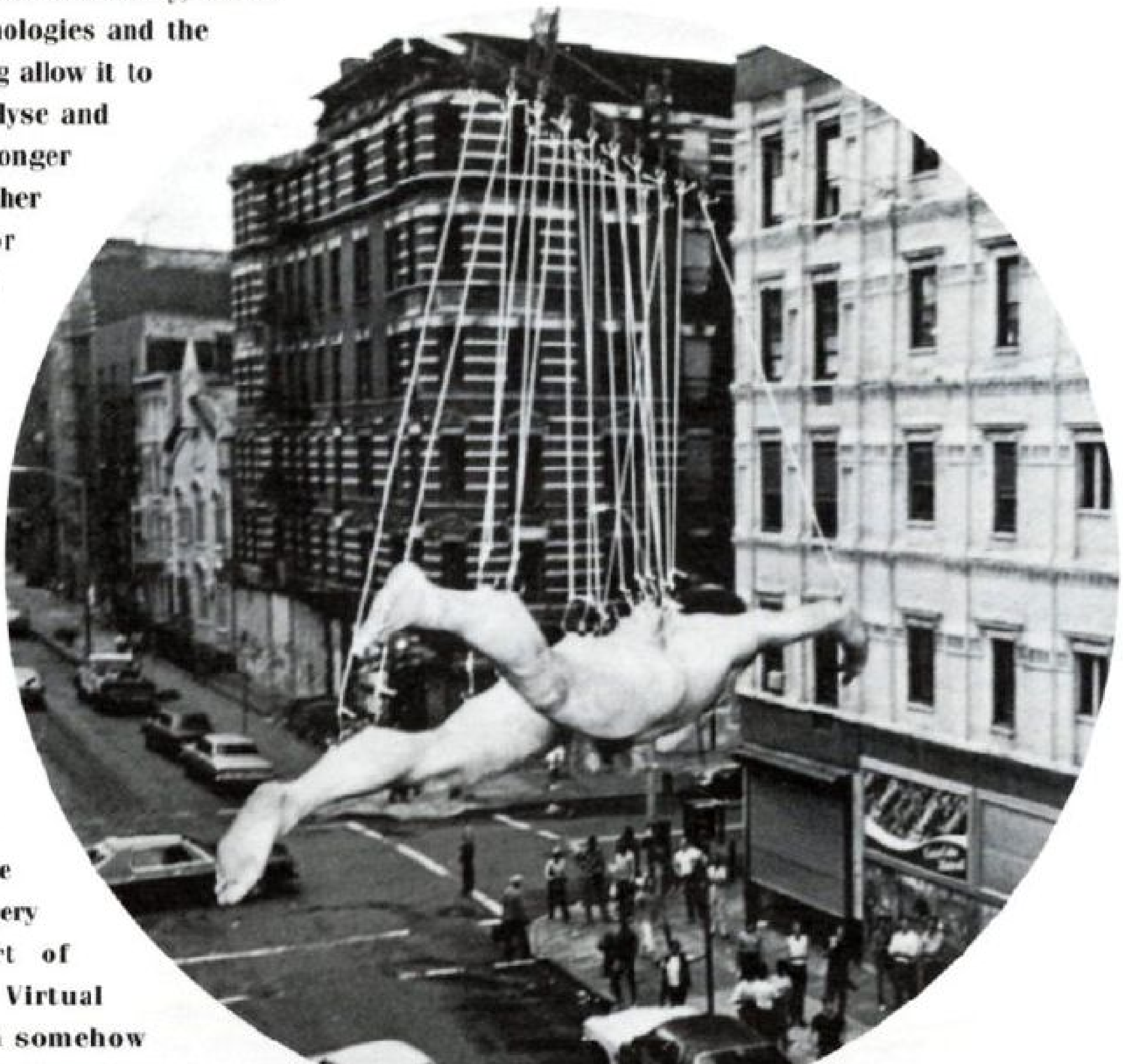
BI: When your designing a performance do you necessarily aim for the inclusion of high tech devices in the show?

I think the notion of high technology can be a misleading one. Sometimes high technology does not mean complexity or does not mean large scale systems or global networks. The amazing thing is that the space shuttle glides back to earth; the amazing thing is solar power generating and creating power with natural elements like wind and water. Wonderful examples that are very

Stelarc is a high tech primate. In performance he displays digital technology in sync with the human pulse. With technology symbiotically creating feedback, audiovisual loops and video effects, he looks like someone who has just walked out of the surgery. The drugs couldn't hold him back, he had glimpsed some unique orbital trajectory beyond our nice anthropoid module. In his earlier works Stelarc hung around like the rest of us, hooks binding his body in suspension, language unable to articulate his



successful and very efficient. So, no not necessarily, but at this present time, the sorts of technologies and the sorts of instruments the body is using allow it to project its human presence, to analyse and possibly question whether it's any longer feasible or necessary to evolve any further with the present human forms or functions. One uses what one can access, and what one can attach and incorporate into the body.



BI: Fiction and art usually generate ideas that haven't been though up yet by scientists. Have you had any offers to work at NASA etc?

Unfortunately I don't think it's that simple any more. Firstly I think ideas aren't often results of a particular individual. That's not to say that certain individuals don't best express certain notions or popularise those ideas. William Gibson is very typical. He coined the term "cyberspace" and it's become a very popular and very powerful sort of description of this new thrust of Virtual Reality. But to imply that Gibson somehow generated all this research is nonsense, because there is a whole history of interactive technology that goes back forty to fifty years where gradually the possibility of creating artificial realities came to light. It's a whole collective collaborative history of scientists, engineers, computer software people working toward more convincing and more direct human machine interface systems. What's interesting to me about Virtual Reality is not so much that we're creating a Timothy Leary electronic version of a LSD trip, but that Virtual Reality systems allow a more effective way for tele-operating remote robots.

Stelarc's early perfomances consisted of suspensions in art galleries, over the breaking waves on the coast or the busy streets of Tokyo

BI: The original concept of a 'Waldo' was actually created by Robert Heinlien, a science fiction author.

I think sometimes a term; a word or phrase captures in a poetic and very powerful way what's happening – and that's what "cyberspace" does. But to somehow imply that this has created a generation of Virtual Reality technology is nonsensical because Gibson has fed off state of the art stuff. But he rephrased it and reformulated it in a more beautiful way.

BI: He's put an ad man's slick polish on it.

I don't think we should be cynical about it. It's just how things happen. There's a continuous complex interaction in ideas, people, scientists artists, it's just as simplistic as individuals having free will. It's simplistic to think that an idea originates with a single individual at some point in history. It's always been a collaborative on going mutating diversifying involuting mish mash of social ideas. Of course the technologies are the instrumentation that have enabled the extension of the body, the harnessing of energies and obviously in human history the body has felt itself inadequate because technology is exactly that process of augmenting and generating greater capabilities of the body.

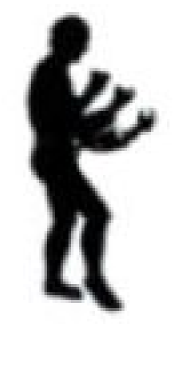
BI: Are you currently doing any work with telepresence and Virtual Reality?

I do have friends in robotics and tele-existance, tele-operation areas. A friend at Tokyo Institute of Technology is involved with more innovative uses of robots, four legged off-the-road all terrain robots. Robotic snakes, elephant trunk like grippers. One is working on his notion of teleexistance which he feels extends Minsky's mere telepresence. His feeling is that if that feedback loop between robot and operator is of such quantity and quality then the psychological barriers between the robot and the operator effectively collapse.

The human being is where the robot is, does what the robot does and that kind of collapsing of psychological distance between the operator and the robot ends that simplistic notion of master/slave mechanisms. You don't have a human operator any more and robot which is simply a puppet, but it's going to have to be semi-



experience. For the audience this vertiginous spectacle is breathtaking. The man disappears into the sky over Copenhagen. Is it a Bird is it plane, no it's superman, primitive angel of death hovering over the City like an



autonomous, semi-intelligent to be able to disobey its human operator in points of time when there's a several minute delay in response from Mars to Saturn to transmit a command. The conditions might change and the robot would then have to disobey that human operator.

I think teleoperation does conjures up fascinating possibilities of one human operator on earth simultaneously controlling a cluster of robots on the moon or simultaneously controlling a number of robots and in that way extending and multiplying human presence. On the other hand you may have a cluster of human experts on Earth controlling one sophisticated robot elsewhere: the deft and precise control of a surgeon with the knowledge of a software programmer or the acute vision needed in a hostile terrain. So it conjures up very interesting notions of extending human presence, projecting a physical action and those type of things.

BI: In my observations we see to have three races evolving on the planet with smart drugs, steroids, and memories enhancers. At the other end of the spectrum you have groups of people reverting back to almost a tribalism at a primitive culture. In the middle you have this 'cyberculture' which is grabbing technologies from one end of the spectrum and the ideologies from the other.

I don't see the events that I do as some kind of yogic conditioning for spiritual pursuit or shamanistic rituals for display of human powers or body building where you extend the human form. What fundamentally is the problem for me is that the human body is obsolete. We've created both an information society and a technological environment: we've thrust the body off the planet into an extraterrestrial realm where its forms and functions are totally inadequate. Its has had this mad Aristotelian urge to accumulate more and more information which it cannot objectively observe and comprehend any more. We have to deal with nanoseconds and nebulas.

If we stopped now and counted to a billion it would take us the next thirty three years. Sub-atomic physicists will talk of a sub-atomic particle of having a life span of nanoseconds and what does this mean, what sort of instrumentation is required to comprehend it? I think it's an evolutionary crisis when humans who are collecting this information can't comprehend subjectively what it means. Secondly we've created a technological environment that has become so intimate, which tends to assault the body with its power, with its speed. Most technologies are more precise, work more powerfully, work faster than parts of our body already. Then tech accelerates the body, hurtling it off the earth. Now the body finds itself floating in zero G. Off the planet the body's complexity, its wetness would be hard to sustain, difficult to justify. Water and oxygen are not plentiful elements away from earth.

My strategy in terms of redesigning the body would be to hollow, harden and dehydrate it.

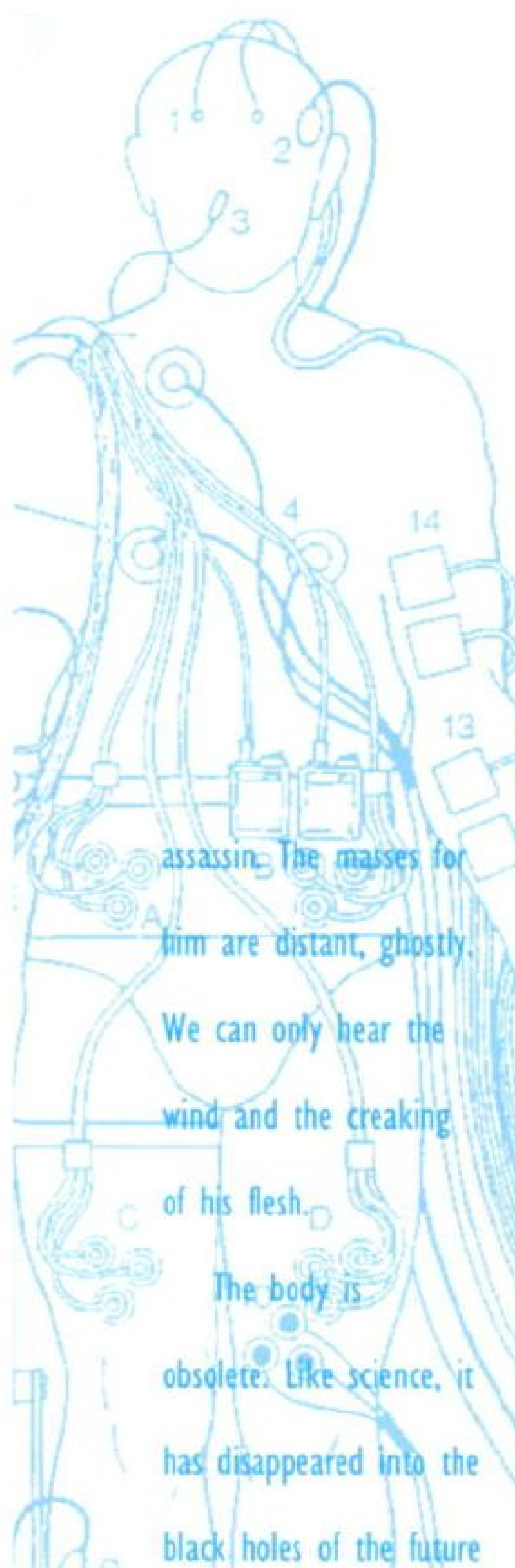
I don't think we have to extrapolate to a future based on the current telepresense systems, Virtual Reality etc. It is a strategy now that is convenient for the body, because it is much easier to clothe the body with electronic circuitry than to implant and redesign the body. But what I'm intrigued about is that if we redesign the human body we'll have to redesign our human roles.

There's some interesting examples there. With this notion of fertilisation of the egg outside the women's body the catholic church was caught on the hop. They wouldn't be births. Women with blocked fallopian tubes can now have children because we now can fertilise the egg outside the body and re-implant it. But medically we're at the point that we can sustain a foetus totally outside the womb. Technically there would be no birth. Existence no longer begins with birth. If we can replace malfunctioning components increasingly with replaceable accessible parts, then technically there should be no death unless there's some unforeseen catastrophic event. Existence is no longer bounded by birth and death, it's no longer this analogue curve of being born, developing and then declining.

Existence has to be redefined and that's what's intriguing.

BI: You've seemed to left out any mention the concept of market forces, there's reasons behind why telepresense is going to work, there's advantages to having your work force working from home, less gossip, lower overheads, easier to fire etc.

This notion of market forces is a dynamic that masks the initial impulse of what's going on and sometimes justifies a particular direction that we shouldn't be pursuing. I'm not saying that it's totally trivial but for us to focus on market forces as the dynamic drive of our post-evolutionary desire's, I think is a mistaken way of perceiving it. One could argue equally the other way, one finds economic reasons for useful things, one justifies and develops these particular directions because they're initially useful and seductive. There's a raison d'etre for them. No one can tell me that the history of computers and the future development of Virtual Reality is simply market forces. People will make money from it, and that's fine. The reason why computers have become more miniature and subsequently faster is a pure necessity for coping with more information for



assassin. The masses for him are distant, ghostly. We can only hear the wind and the creaking of his flesh.

The body is obsolete. Like science, it has disappeared into the black holes of the future — only these fragments remain. Stelarc is not communicating with a depth model. His head is a vacua vampirised by his body. Using a prosthetic arm and virtual assistant he writes with three limbs. The word is Evolution.

This statement of vacuous surreality fuses the machinery of representation. Like

extending the human realm of perception and cerebral possibilities. The fact that you end up with a personal computer is a happy side benefit of it. It's not the driving reason for it.

BI: The amount of spin-off products from the Nasa and the space race, velcro for example.

Yeah, Virtual Reality is essentially a NASA developed thing. I'm not a particularly politically motivated person and I sort of don't like to dwell on the economics of these things. Sure they are factors in the final proliferation of a technology but that technology has to justify itself conceptually or socially before that becomes possible. To make money is OK.

When we redesign or reengineer human beings, then perhaps it may be the market forces or the rich or the elite that control it.

BI: That's why I'm looking at the people who are organ legging right now and the people who are popping themselves full of Vaspirn and various types of smart drugs which will set you back US$300 a month. You will find a minority taking these items.

If we are going to talk social politics then we can't be naive in the other extreme and we shouldn't be cynical either. I think in human history, either human experience, human development or technological innovation has never been applied evenly and they have to appear initially to some isolate, insulated or even elitist group. It seems as if the whole process of development and proliferation involves the initial experimentation on a small group. But also the people who first get access to things end up being the ones who are in fact experimented upon. Barney Clarke did not live long with his artificial heart. He has a place in history. There are astronauts who have been blown to smithereens on the space shuttle. There may be the elite who first consume these technological innovations or first experience travelling on the space shuttle but they're also the first ones to be experimented on, who also suffer the consequences associated with that situation.

I'd be quite happy if someone suggested a surgical technique, operation and implant to me. I would be very intrigued about being experimented upon. But then that involves the risk of an unperfected technique; the ultimate effects aren't analysable. We've had a history of scientific and technological disasters. Look at the Thalidomide children. It was supposed to make it a little easier for women to bear the problems of birth. All of a sudden it developed a generation of deformed limbs. However, that stimulated a generation of research in artificial arms and legs.

Our entire history of technological development is not some simplistic story of right or wrong, good or bad. It's a very complex interplay of social disasters, technological innovations, political priorities, market forces. It's all these things connected together.

BI: In Japan they have an almost an intimate relation with their technology.

Certainly you don't get the angst about technology, there's no Frankenstienian fear of robots taking over the world. In fact, there's this happy mix of humans and machines in even more intimate ways in Japan. If were going to expand the human lifespan because of the new pressures of technology and the vaster realm of extra terrestrial spaces that the body has to inhabit, to me that's not a Faustian option; we shouldn't have a Frankenstein fear of tampering with the body. A lot of the popularised Japanese comic book Manga feature images of super robotic structures which are hosts for a human implant. The human body activates this sort of robot structure.

For me there are signs that quite the opposite is happening. With the microminaturisation of technology, technology is invading the body. Evolution ends when technology invades the body. With microminaturised robots and nanotechnology you'll have the option for the body to become a host for the technology, you'll have the option to recolonise the body with microminaturised robots to augment our bacteriological population, to monitor and power the human body. This is what is intriguing. So the popularised Japanese image is still immersed in a rear view mentality of what technology is, technology as a containment of the body rather than the component which it is becoming.

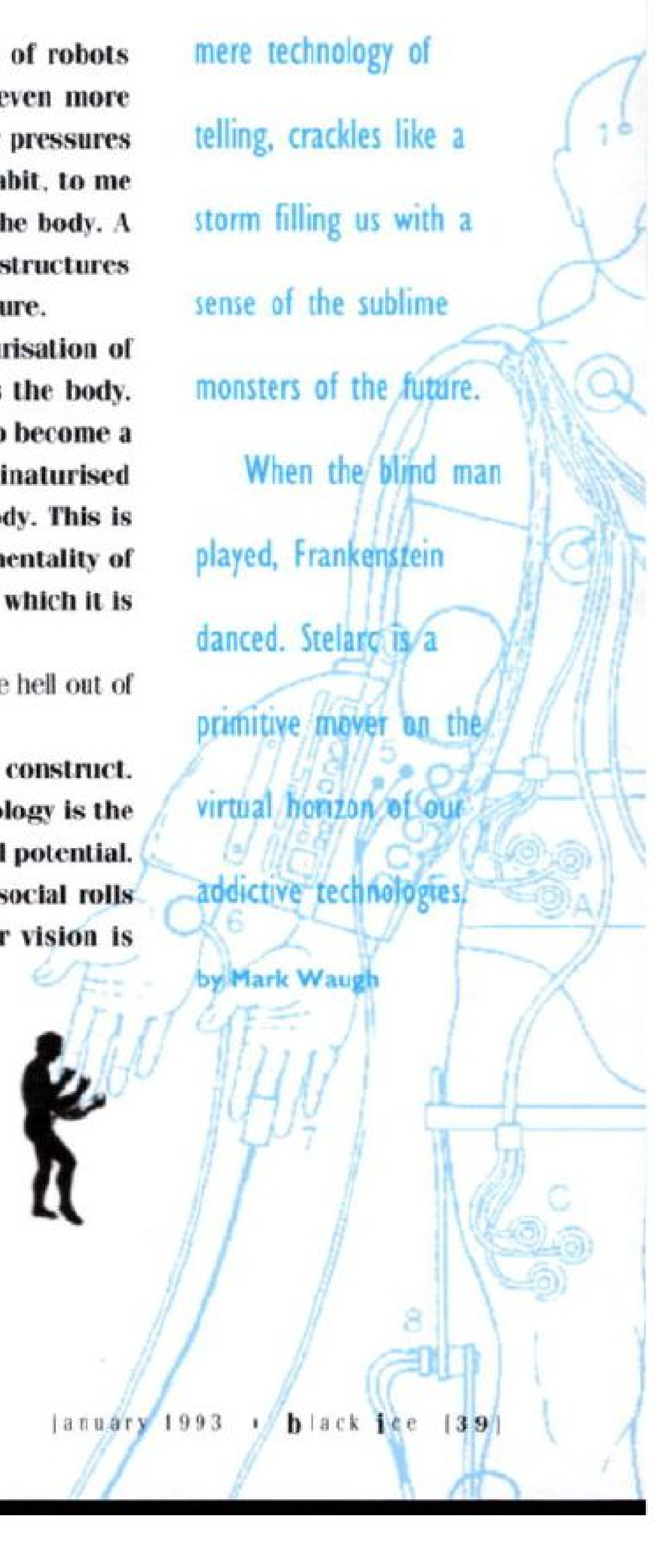
BI: A lot of the Japanese animated Manga has pixie-like women in these huge robots beating the hell out of the bad guys...

Well there is a feminist critique that says that technology is nothing more than a male construct. It displays the worst of male aggressiveness and male power. So the realm of the technology is the realm of the male. But technology standardises our sexuality, and equalises our physical potential. If women are now released from the biological burden of bearing children, then their social rolls become more equal to men. If a women is looking through a microscope then her vision is sharpened as much as any man looking through a microscope. Even if it did start as male construct, nonetheless it standardises our sexuality, redefines our social roles and equalises our physical power. For me technology erases sexual differences rather than enhances them.

Frankenstein, Stelarc is a montage of electricity and mythology. Unlike most cyborgs, Stelarc is fucked up and clued up, unlike most men he feels guiltless about his autoerotic conductivity. As he travels he drags with him the limbs of another body, a body without organs. The mythology of this monstrous genealogy, a feminine story that moves us beyond the mere technology of telling, crackles like a storm filling us with a sense of the sublime monsters of the future.

When the blind man played, Frankenstein danced. Stelarc is a primitive mover on the virtual horizon of our addictive technologies.

by Mark Waugh





BUSTING THE SIMULACR

CLASS X DRUGS MOVIES

There have been lots of theories about the origins of the cinema. Some people have gone back to the invention of perspective and the development of pictorial space; some have gone back even further to primitive cave paintings. There has been much talk about voyeurism and paranoia. Everyone seems to agree that cinema is a wonderful control mechanism. But what if it were secretly the opposite? What if cinema were intimately concerned with the dissolution of time and space, the blurring of vision and the eclipse of consciousness? What if movie-going represented the first mass experimentation with mind-altering substances?

Cut to Martin Scorsese: "Much of **Taxi Driver** arose from my feeling that movies are really a kind of dream-state, or like taking dope. And the shock of walking out of the theatre into daylight can be terrifying." Maybe this gets to the real fascination of cinema. Movies as hallucinogens. Going to the pictures as a fix. Quitting the cinema as coming down. No wonder Hollywood has been so obsessed with drugs, not just as the plot staple of every routine thriller but as agents of character mutation and visual delirium, as vehicles for self-reflexive comment.

There are drugs movies and then there are **drugs** movies. There are movies-about-drugs like **The Boost**, in which James Woods plays a yuppie who fools around with coke and then sees his life take a nose-dive, and there are movies-as-drugs like **Taxi Driver**, the urban horror movie which stunned a generation and prompted one John Hinckley, Jr to go get a gun and chase down President Reagan. You might say that the former are Class A drugs movies, in the sense that they are about controlled substances, while the latter are Class X drugs movies, in the sense that they are dangerous and unpredictable substances in themselves.



CONFESSIONS OF A FILM JUNKIE

"I remember the first time I saw **Taxi Driver** back in the Seventies. I was 18 at the time and it blew my mind. It was on at a local fleapit Odeon as part of a double bill with **Midnight Express**. I had nothing else to do that Friday night. But right from the first swirling image of the taxi cab I was hooked. I went to see that movie again and again. I couldn't believe it when a girlfriend said she didn't like **Taxi Driver** because she couldn't identify with the main character, who was this complete psychopath. For me, Travis Bickle was just like, **normal**. It was only years later I realized the film is essentially a comedy. I still dream about Travis sometimes."

George, 33, a systems analyst from Reading



BEING-ON-DRUGS AND TIME

With her book **Crack Wars**, the post-punk theorist Avital Ronell has opened a philosophical dossier on addiction. Her chief point is that before they are substances or commodities, "drugs" are ways of zoning the human body and its relationship to the state. A gang of cops raiding a housing estate at dawn, pumped up with racist images of wild drug fiends, are just as much on something as a dull-eyed junkie begging on the corner. Probably more so.

According to Ronell, "addiction" defines a primordial "rapport to being"; it defines our relationship to the world. Even living "drug-free" can beconsidered as an addictive process, a quantification of the vectors of metabolic drag, subjective time and boredom. That is the reason why people who spend too much time doing drugs or even going to the movies begin to look different after a while. It is if their body clocks alter and they start to live on what Burroughs has called "junk time".

DEFINITION OF A SIMULACRUM

"Plato distinguishes between the idea and its physical embodiment, between the model and the copy, but he also occasionally discriminates between the



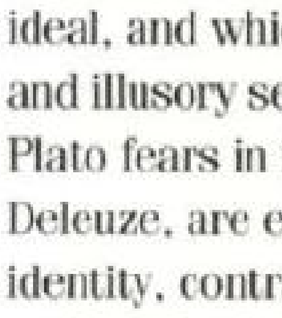
UM: MOVIES AND DRUGS

by Steve Beard

good copy (**eikon**) and the bad copy (**phantasma**), or simulacrum.

Deleuze argues that one of Plato's major concerns is to separate good and bad copies, true and false claimants to filiation with the ideal, by noting which copies have an inner resemblance to the ideal, and which bear merely an external and illusory semblance of the ideal. What Plato fears in illusory simulacra, claims Deleuze, are entities with no fixed identity, contradictory or disguised entities in which the dimension of an unlimited and illogical becoming is revealed, a dimension in which objects may be said to be simultaneously both hotter and colder, bigger and smaller, younger and older. Such objects escape the domination of the idea, and as a result threaten both models and copies."

Ronald Bogue, Deleuze and Guattari, 1989



CLASS A DRUGS MOVIES

What do drugs do to the human body? They trigger mood swings, time shifts, nervous spasms; they generate visions. Just like the cinema.

Drugs and movies both offer simulated experiences of reality which are deeply troubling on a metaphysical level. Both are "simulacra". The difference is that only one is legal. Which is the reason why most Class A drugs movies – especially those, like **Postcards from the Edge** or **Wired**, which are actually set in Hollywood – repudiate their source material so hysterically.

Postcards from the Edge is a confessional movie about the horrors of drug addiction, Hollywood Babylon and rampant careerism. As an adaptation of Carrie Fisher's semi-autobiographical novel it is also a simulacrum which pretends it is an **eikon**, a good and faithful copy of what it is like to be a celebrity addict. Meryl Streep substitutes for the fictional persona which substituted for Fisher in the book, Hollywood substitutes for real life, and a tedious moral panic about coke addiction substitutes for any serious examination of why Streep/Fisher needs movies so badly.

And **Wired**? This is a movie about the hard life, fast times and stupid death of John Belushi as originally reported by Bob Woodward. It was billed as an expose of the libidinal economy of cash and cocaine which fuelled the American film industry in the early Eighties and was buried by Hollywood as a result. Not that it is even faintly subversive. Another tame little **eikon**, it plays the same substitution game as **Postcards from the Edge** and even goes so far as to restage supposedly famous (but actually very boring) routines from Belushi's film career with all the kitschy solemnity reserved for martyred saints.

ENTRY FROM A FILM ENCYCLOPAEDIA

Drugs

extraterrestrial responsibility for Dark Angel

fight against Best Revenge; The Crackdown; Death Wish 4; Fatal Beauty;Firebirds; A Force of One; Foxy Brown; French Connection; French Connection II; Gordon's War; High Risk; K-9; The Last of the Finest; Lethal Weapon; Lethal Weapon 2; Lucky Luciano; The Marseilles Contract; The Organization; Predator 2; Prince of the City; Puppet on a Chain; Return of the Dragon; Running Scared; Shakedown; Sicilian Cross; Stoner; The Super Cops; The Supergrass; Tequila Sunrise; Who'll Stop the Rain?

use Altered States; Bad Boys; Bird; Blue Sunshine; The Boost; Brain Damage; Bright Lights, Big City; Cheech and Chong's Next Movie; Christiane F.; Ciao Manhattan; Clean and Sober; Cocaine; The Cocaine Fiends; The Connection; The Courier; Crack in the Mirror; Dark Habits; Drugstore Cowboy; Easy Rider; The Falcon and the Snowman; Fast Talking; Fast, Fast; Joe Albany...A Jazz Life; Lady Sing's The Blues; Let's Get Lost; Liquid Sky; The Man with the Golden Arm; Un Monde sans pitie; Panic in Needle Park; The People Next Door; Postcards from the Edge; Reefer Madness; Silent Scream; Superfly; Slow Dancing in the Big City; Tiger Warsaw; Torchlight; Trash; Up in Smoke; The Vortex; Wait Until Dark; Where the Buffalo Roam; Wild in the Streets; Wired



IT'S GOOD STUFF, MAN

"The cinema fetishist is the person who is enchanted at what the machine is capable of, at the **theatre of shadows** as such. For the establishment of his full potency for cinematic **jouissance**, he must think at every moment (and above all **simultaneously**) of the force of presence the film has and of the absence on which this force is constructed... Of course, this attitude appears most clearly in the 'connoisseur', the cinephile, but it also occurs, as a partial component of cinematic pleasure, in those who just go to the cinema: if they do go it is partly in order to be carried away by the film, but also in order to **appreciate** as such the machinery that is carrying them away: they will say, precisely when they have been carried away, that the film was a 'good' one, that it was 'well made'"

Christian Metz, "The Imaginary Signifier", 1974



DOING FILM

Taking in a film was not always the same thing as going to the cinema. In the early days of film culture in the late nineteenth century – before the institution of cinema even existed – Edison "kinetoscope" films were exhibited in music halls, penny arcades, fairgrounds and other carnival resorts and advertized as gaudy "peep shows". Film was considered a popular novelty, cheap, intoxicating and vaguely sleazy. The places where it was available were noisy, rowdy and disreputable. As far as the middle classes were concerned, they were little better than opium dens.

The next obvious step was to establish a cultural space for film in its own right. In 1900, taking advantage of the falling prices of the new movie projection equipment manufactured by Edison and Biograph, Thomas L Tally set up a movie show at the back of an amusement arcade in Los Angeles and christened it "The Electric Theater". Consisting of a simple screen and curtain, a pit for a small orchestra or piano, and bench seating, it was an immediate success. Soon, penny arcades, pawn shops and dance halls were being converted into storefront movie houses across the country. By 1908, there were ten thousand of these "nickelodeons" in the United States. But they were still something which the middle classes avoided.

Around 1910, demands for higher standards of public safety at the nickelodeons, combined with the increasing conglomerization of the film industry, meant that cinemas went up-market. The next twenty years saw the ascendancy of the picture palace in an attempt to attract a new mass audience and make cinema a recognized part of the national culture. Screen sizes increased, upholstered tip-up seats replaced benches, lounge furniture was introduced into the foyers. In some cases, chandeliers, elaborate staircases and fine draperies were installed.

Like the department stores which often faced them in the centre of a city, the picture palaces showcased the same wares simultaneously across the country. Sites of bourgeois recreation on a mass scale, they were institutions geared to the regulation of urban manners and mores, pleasure machines devoted to the sexual policing of a newly industrialized labour force. Mass attendances at picture palaces were in many ways the cultural equivalent to Foucault's "generalized medicalizaton of the population."

The new game-plan worked. The experience of seeing a film, of plugging into a potentially intoxicating "simulacrum", had by the early Twenties been successfully institutionalized. The next twenty years saw the increasing integration of cinema and industrial capitalism. The system of vertical integration which dominated American cinema from the Twenties to the Forties meant that a limited number of corporations owned the backlots where films were made and the picture palaces where they were screened.

Eight studios controlled the American motion picture industry throughout the Thirties and Forties. They were known as the Big Five – Paramount Pictures, Loew's Inc (parent company of Metro-Goldwyn-Mayer or MGM), 20th Century Fox, Warner Bros and Radio-Keith-Orpheum or RKO – and the Little Three – Universal, Columbia and United Artists. The Big Five were fully vertically integrated, whereas the Little Three concentrated on production and exhibition. For all of them, picture-making was concerned quite as much with the regulation of consumer demand, the manufacture of the desire to go to the movies, as it was with the steady ticking-off of production quotas.

But this desire for simulacra was a tricky thing. It had to be monitored, shaped and modelled. In 1922, some of the early Hollywood companies like National, Paramount and Goldwyn established the Motion Picture Producers and Distributors of America under the presidency of a government official, Will H Hays. The MPPDA advocated that films should conform to certain tightly controlled moral principles. These were later formalized in the Hays Code of 1930.

What does all this have to do with drugs? It's simple. All these developments – the industrialization of cinema, the gentrification of movie houses, the moralization of filmic protocol – represent an alternative way of dealing with the problem of simualcra to banning them entirely. Compare the effects of Prohibition. Ten years into its operation, more than half a million Americans had been arrested for drink offences, the black market in alcohol had been taken over by organized crime and political corruption was widespread.

The Act of Prohibition was passed in 1920 as a result of the lobbying activity of the temperance societies, who were convinced that alcohol was sinful. Not only did they attribute a range of social evils to the effects of booze, but they

QUOTE FROM A TELEPHONE TRANSCRIPT #1

"What alarms me is that we're now living under a regime that feels that certain things can be simply done with, finished off, repressed, wiped out and so I thought I'd see if addiction doesn't have a more originary status than has been allowed for it. And once one recognizes some basic and no doubt dangerous truths that Freud and even Marx, who spoke of the 'opiate of the people', recognized long ago, one can no longer simply persecute a subject who claims to be addicted or who is addicted; one has to first of all understand theoretically and thoughtfully and carefully what constitutes addiction and then if it turns out that addiction in fact informs the possibility of Being or the fundamental relation of Being to the world then one is impelled toward different kinds of evaluations." Avital Ronell in conversation, May, 1992

considered drinking was immoral in its own right. Heroin and opiates were outlawed at the same time as alcohol. The result was the development of a black market in these banned simulacra. Gangsters like Al Capone were as famous as any movie mogul in the Twenties – something which is hardly surprising when you consider they had established their own system of vertical integration in this shadowy industry. In many ways, the illegal drinking dens or "speakeasies" of Prohibition were the underground equivalent of the picture palaces. Meanwhile, the gangster movie – films like **Scarface** and **The Public Enemy** – were the Class X drugs movies of their day.



BACK TO ADORNO

"In opposition to Adorno, Benjamin held a positive view of modern reproduction techniques as they were applied in art. This disagreement can be traced to their respectively different understanding of capitalism, rooted in different experiences and formed at different times. To put it simply, Adorno was looking at the US of the 1940s, Benjamin at the Soviet Union of the 1920s. Another important factor is that, like Brecht, Benjamin saw great potential in the 'Americanism' introduced in Germany in the 1920s, while Adorno never overcame his deep mistrust of anything American. Both authors, however, have to be criticized for a distortion of perspective... Just as we should question Adorno's view of the United States, we should be skeptical about Benjamin's idealizing enthusiasm for the early Soviet Union... Neither Adorno's thesis of the total manipulaion of culture, nor Benjamin's absolute belief in the revolutionizing effects of modern reproduction techniques, has withstood the test of time. Benjamin, to be sure, was aware that mass production and mass reproduction in no way automatically guaranteed art an emancipatory function – not when art was subjected to the capitalist production and distribution apparatus. But it was not until Adorno that a theory of manipulated art under the capitalist culture industry was fully developed."

Andreas Huyssen, "The Cultural Politics of Pop", 1975



THE ALL-AMERICAN DOPE FIEND

Reefer Madness, made in 1936, is the prototypical anti-drugs film. It opens with a know-all



HP Crane presents in this film facts from the Marihuana menace compiled from articles published in some of our best magazines...

[Background of dated carnival and circus music intercut with crime film soundtracks]

Divulging heretofore untold orgies of youth dissipation...

Weird parties...
Wild Diversion...
Unleashed Passion...

A sensitive lovely girl, made hard and brittle by Marihuana

Are your children prepared to attend unchaperoned parties?

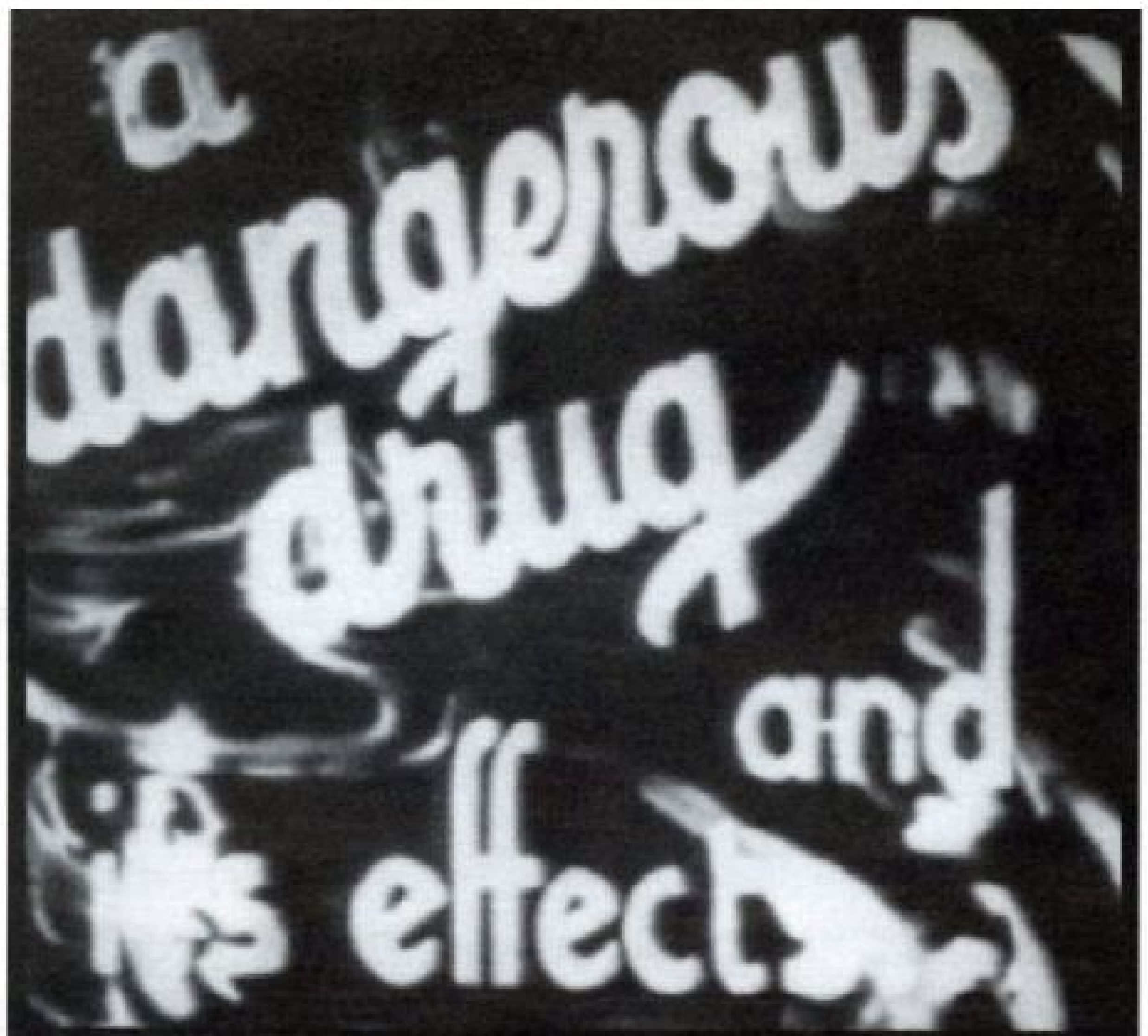
See and hear what goes on behind closed doors!

Unfolding new pitfalls to America's Youth

It's vivid, it's powerful... it's daring... beyond imagination... but it's true...

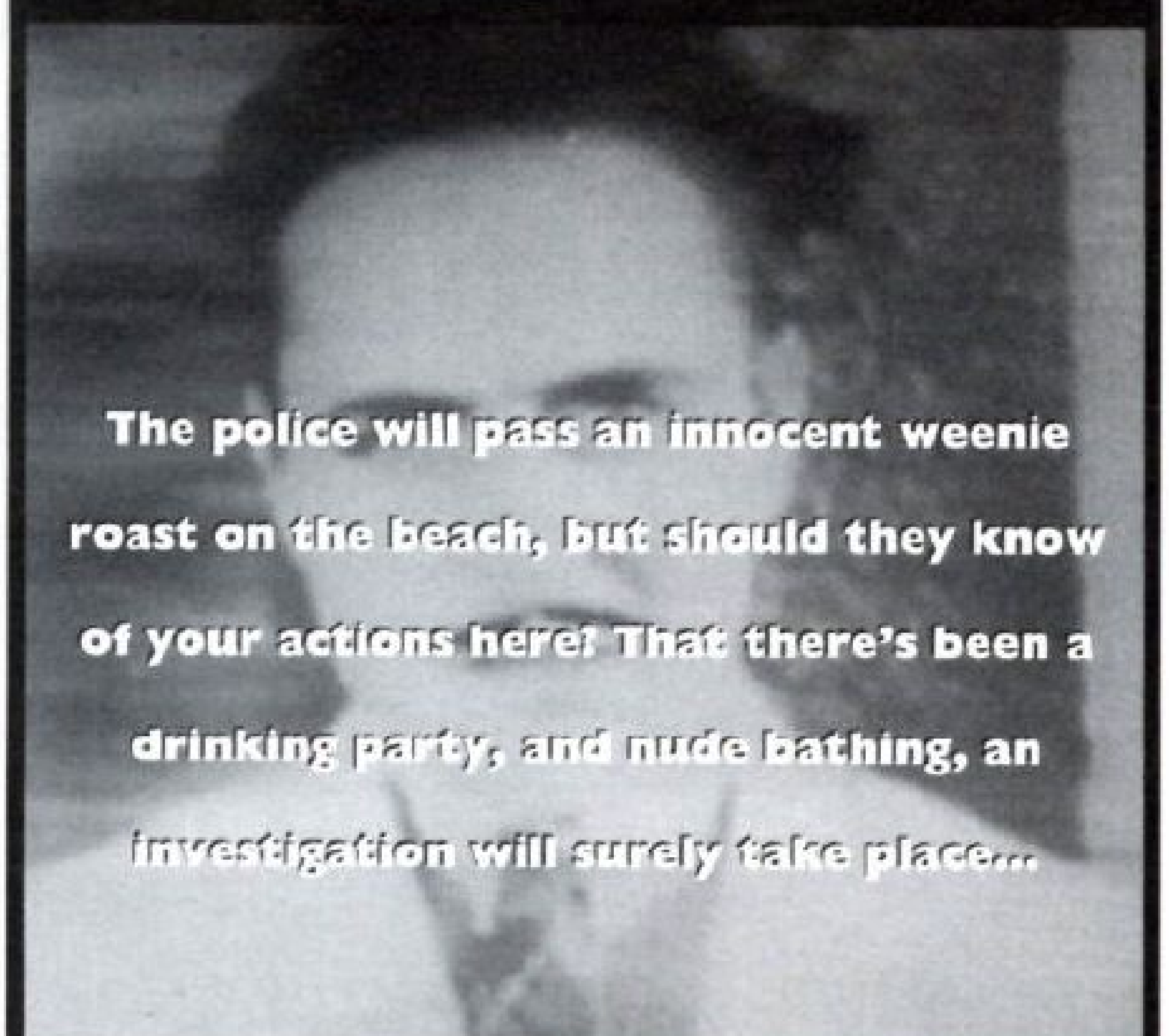
Made with the co-operation of the Federal State and Police and Narcotic Officials

"Your daughter is a psychopathic case. She's on the verge of insanity. She has marked symptoms of drug addiction and I strongly believe she has been using Marihuana"









teacher instructing the parents of his innocent young charges that there is a killer weed spreading through America like the worst kind of social disease. It then zooms in on an all-American school kid and shows how, once he has been seduced into the pleasures of dope by a gang of crazed maniacs, he descends into a nether-world of prostitution, murder and suicide. All from one little puff on a funny cigarette.

The climate of hysteria which allowed such a film to be taken seriously was created by Harry J Anslinger, who was appointed commissioner of the Federal Bureau of Narcotics in 1932. Anslinger was obsessed by the imaginary terrors of cannabis and successfully lobbied Congress to outlaw the drug in 1937 by linking its use with sexual frenzy, berserk violence and, most significantly, black crime. In other words, he single-handedly invented the potent myth of the "dope fiend".



THE JUNKIE AS THE ULTIMATE CONSUMER

"Junk is the ideal product ... the ultimate merchandise. No sales talk necessary. The client will crawl through a sewer and beg to buy ... The junk merchant does not sell his product to the consumer, he sells the consumer to his product. He does not improve and simplify his merchandise. He degrades and simplifies the client. He pays his staff in junk."

William S Burroughs, Naked Lunch, 1959



COMING OFF IS HARD TO DO

Fashions in drugs may change, but the myths remain the same. What's particularly distressing is how many users, particularly heroin users, are willing to buy into them as soon as they hand over the cash for their first hit. First up is the myth of the pusher as evil tempter, corrupter of innocents, a shady figure plugged into a vast illicit network of underworld manipulations and covert operations. It's a paranoid mindset that owes a lot to William Burroughs, whose novels from **Naked Lunch** onwards have always enjoyed confusing the identities of the pusher and the secret agent, but it tends to obscure the fact that most dealers are simply users attempting to finance a habit.

Next up is the myth of addiction as something instantaneous and eternal, the junky enslaved by his habit. But it's not stopping that's the problem, it's wanting

to stop. Which is where the third myth comes in – withdrawal as the torment of the damned. Again the guilty parties aren't too hard to find. Think of Sinatra climbing up the wall in **The Man with the Golden Arm**, Gene Hackman gnashing his teeth in **The French Connection II** or Jason Patric chewing the carpet in **Rush**. What a bunch of male hysterics!



CHASING THE DRAGON'S TAIL OF CAPITALISM

It has been recently estimated that the Western banking system launders $49 billion in drug profits every year. Like the giddy rush of capital around the globe on the twenty four hour stock market, the international trade in drugs nowadays is all about green alphanumerics blipping up on computer screens and numbered Swiss bank accounts. As the days of suitcases full of hot dollar bills begin to recede into myth, the cinematic stock in trade of every second-hand **Miami Vice** rip-off, so it becomes harder to get a fix on things, to match up an on-the-ground smuggling operation with the flight of computer commands through the electronic ether. Even the traffickers themselves seem to be confused, if the reports of Miami drug dealers modelling themselves on the nihilistic flash of Al Pacino in **Scarface** are anything to go by.

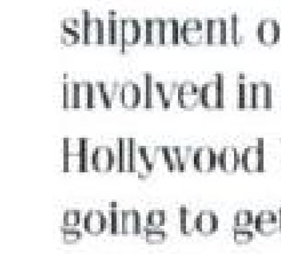
Things were so much simpler back in the 60s. Then it was still possible to trace the international supply lines of the drugs trade for the simple reason that they tended to shadow in reverse the surviving logistical route maps of colonialism. The post-war flood of drugs into the Western world was in many ways a predictable historical irony, the return home of the repressed matter of foreign adventurism. Heroin was smuggled into Britain from Pakistan, the "French Connection" was the point of process for North African opiates, while the Vietnam war opened up the "Golden Triangle" of South East Asia for business and triggered a heroin epidemic back in the USA. Vietnam too virtually patented the whole illicit drugs-for-arms equation which has played such a large, if covert, part in Reaganite foreign policy from the backing of the Afghan rebels to the funding of the Contras.



WAR AND DRUGS AND CINEMA

In his 1984 book, **War and Cinema**, Paul Virilio conceives of the stereotypical picture palace of the Thirties as a kind of urban troop ship designed to keep the masses in military harness after demobilization. According to this slightly baffling scenario, cinema functions as a rallying call to arms, a form of "perceptual logistics". While the Hollywood star system becomes the perceptual arsenal of this military machine, with the sex symbol figured as a kind of irresistible image bomb, its big guns are defined by the musical comedies of the period, especially the all-singing, all-dancing spectaculars of Fred Astaire. It was the task of movies like **Top Hat** and **Follow the Fleet**, Virilio argues, "to imbue audiences with fresh energy, to wrench them out of apathy in the face of danger or distress, to overcome that wide-scale demoralization which was so feared by generals and statesmen alike".

An interesting theory. What Virilio does not consider is the way in which war and cinema overlap in terms of their relation to drugs. Just as drug-consumption has been an important feature of technicized warfare, a means of adjusting the metabolic equation between the human body and the war machine, so it has been a significant part of the logistics of movie-making. Think of the shipment of money, men and machinery involved in the filming of the average Hollywood blockbuster. How else is it going to get made unless everyone is on coke?



MOVIES, DRUGS AND VR TOO

The most influential drugs movie of the last ten years is Ken Russell's **Altered States**. Loosely based on the psychedelic life and times of John Lilly, it stars William Hurt as a scientist who goes on a head-trip too far in pursuit of forbidden primal knowledge. Although the movie is couched in terms of a Faustian cautionary tale, it does a remarkable job of outlining the epistemological paradigmn of Nineties cyberpunk culture. Suggestively mapping hallucinogenic drugs, tribal shamanism, float tanks and sensory deprivation, evolutionary breakthrough, the language of schizophrenia, image-resolution technologies, black boxes, genetic engineering and the discourse of primatology on to each other, it comes up with a rough-and-ready digest of the theories underpinning the development of virtual reality today.

The psychedelic trip sequences may have dated badly, but then what trip movies – from Roger Corman's **The Trip** to Bob Rafelson's **Head** – haven't? Although Russell can only fill it with dumb hippy images (giant flowers, monstrous women, sub-colonial surrealism), what is significant about **Altered States** is its isolation of a discursive space today occupied by VR and its attendant technologies. The movie's emblematic scene? William Hurt convinced that the Mexican magic mushrooms he has consumed can generate only so many visions before they pass a "black-out barrier" at which point he continues to hallucinate but has no access to the images screened in his brain. This is as good a definition of VR as any: a cinema of the mind which leaves its subject blind.

QUOTE FROM A TELEPHONE TRANSCRIPT #2

"The drug traffic and economies, these are a phantom and double of capital and the flow of capitalism. And it's Deleuze who reminds us that capital isn't just capital; it's a kind of — he doesn't say a drug — but it's certainly a locus of intense desire, of symbolicity, of passage and of intense activity which organizes all sorts of symptoms, desires and needs — and on a highly symbolic and abstract level. So capital itself is not itself but relies on this kind of gold value; so it's the mother of all values - in a sense it's a maternal empire which has to be mapped and found and around which one wants to circulate and conquer and so on. So the libidinal flow of capital shouldn't be underestimated. So even capital is already its own ghost with a kind of reserve of value and desire. So drugs are, if one wants, a moment in capital's eruption as an attempt to be an object. So I do think it's a very complicated thing and has a lot to do with doublings or the capital that is and is not real and is the production of all desire and so on and so forth." Avital Ronell in conversation, May, 1992



interview

BUZZ

by mark bennett

BUZZ has been described as a thematic, global collage, mixing documentary, news, found footage, sonics and text. Originally designed as a thirteen part series commissioned by MTV, it was first broadcast commercially in 1990 but was later cancelled because of, among other things, its cost.

BUZZ, the most expensive program ever made by MTV, was designed to be syndicated internationally and is currently on air in the U.S., Italy, Turkey, Scandinavia, Australia and Brazil with assorted episodes being screened in Japan, Germany and Mexico...



BI: What is your idea of BUZZ and how do others perceive the program?
Jon Cline: It started off with something that I had originally come up with in a vastly simplified form: a name and an idea for a global TV show. I hadn't been outside North America until I was sent out to Europe as one of the five people to set up MTV Europe. I was responsible for the station's look/graphics and feel. They said take the first few months and go around Europe to see what the people are doing, what they're wearing, thinking and feeling. It was the totally ultimate great trip, all being on the company's expense. It kinda blew my mind since I had never been out of the States. It's like you go to a place like Copenhagen and you discover that there's a totally vital scene happening there and they aren't waiting around to find out what's the latest thing happening in New York or London. Of course they care, but world doesn't revolve around it. I kinda got this idea for bits of energy from around the world, gathering it, collating it, sifting it, and spewing it all back. Visually kinda like a big dish, gathering in all these signals and spewing it all back, then MTV put Mark and I together – we had never worked together – we were both mutual admirers of each other's work although we were coming from from such different places – and we did the pilot together. Working with Mark totally changed it into something vastly greater than I had ever imagined it would be. It was really something that was created fresh once I had started to work with Mark.
Mark Pellington: Jon had been working previously in news and had gone over to MTV Europe and had gotten the global tip/the global exposure and I had stayed at MTV and had been doing little promos – starting with 10 and 30 second pieces, just taking people's footage and cutting it together with little hip-hop tracks and stuff like that, then cutting different people's visuals – just loosely trying to do little thematic pieces. And I had been pitching to MTV a thematic show called 'Sign of the Times', at the time, which was like a thematic collage. I was thinking at that time purely American and purely collage with not much story or editorialising.
MP: It was totally meant to comment on pop culture from within and so when they said we want you to work with Jon on BUZZ, they had already rejected my idea for being too abstract.
JC: He was really pissed off:
MP: I was really pissed off. But I said, fuck it since I really liked Jon's work and what he's been doing, and put whatever I had done for my idea into this show, into BUZZ, so it was really the best of both worlds.
JC: Both of us had an idea of a thematic show based on universal themes, like a meditation on a theme, but much noisier and more intense than a meditation. Almost like in a retarded way, I was imposing some order on Mark's chaos and he was imposing much needed abstractions on my stuff. Of course MTV saw me as the editorial guy and he was the look guy, but we threw the baton back and forth. I remember for the original pilot I brought over from England, "Crash" by J. G. Ballard and "Burning Chrome" by William Gibson and I said...
MP: Read these!
JC: Everyone has to read these books, I had gotten 15 books and I said 'if you don't like 'get it', you shouldn't be working on this project.'
MP: We did the pilot which was very fresh to many people but I think what we felt was that it was very one dimensional, very flat, like a magazine, so when they then took the pilot and started selling it and getting interest for it about eight months down the road and they gave us the go ahead for doing the series, Jon and I



David Hamilton Eddy
Architectural Journalist

had sort of grown tired of the pilot in certain ways, the look, whatever. We both said, "let's change it" and we had both met people who added some interesting things. We'd seen some new movies and had been influenced more, so we had changed quite a bit.

JC: Much to MTV's dismay

MP: So we had gotten rid of the flat one dimensionality of it and had made it more three dimensional and made it more alive. And we both came up with this theory that we could go inside a television set. Jon had said before that we should do this little channel changing globe hopping sort of thing. It really all came together, the best of both our ideas.

JC: It became really physical, we really wanted to make something that had a mental and emotional effect on people.

MP: That was active, it was McLuhanesque, that wasn't cold and and passive, we wanted something that was hot and active and involving. We decided on some rules: we didn't want a host telling you what to think: so we used this projected text. Jon was to write the

words, and then we would decide on the theme.

JC: We sat around and basically said OK, we have lucked out, they have given us the go ahead, let's look at everything we fucking hate about TV and everything we think is lame and just like take it out. Do we need a host? Do you need to lock into one or two people to tell you what you see? No! Do we need subtitles at the bottom? No, because your eyes start at the top.

MP: We had taken this film course that had said psychologically the top right of the screen was the most powerful. We had wanted to do something that was different and we realised that this might be our only shot at doing this thing.

JC: And we wanted to be proud of it later on. We like thought, fuck it man, this is going to be on network TV!

MP: We had never done a show before, the longest thing we had ever done was a music video.

JC: We had never done this shit before and we're making it up as we go along, so we don't want to lame out, crap out. We didn't want to think that we had a really great idea for a show but we didn't think people could handle it so we made it lame.

BI: Where were you getting your inspirations from? You mentioned Ballard and Gibson.

JC: Ballard, Gibson, Burroughs. A lot of music. Just the entire idea of appropriation, sampling, dada-ism, inspired theft. We also discovered that we were reworking various avant guard film techniques from the Thirties and Forties that we had never heard of before.

MP: Some of the people we involved from New York, Lewis Clarke who had been cutting super-eight film up into strips and this other guy Glen Ribble, these guys were Stan Brakhage (experimental NYC film maker) disciples. It was just a question of plugging into anybody – Burroughs, Gibson, Timothy Leary, Jenny Holzer – whoever we got turned on by – musically, whatever artists we like.

JC: There is also a slight fan boy attitude to it all. We were here and Burroughs had an art gallery show over here (his collaboration with Keith Haring) and we got to meet him. We were in this room with people we were in awe of and to actually have him say that you're doing cool shit... Burroughs saw the pilot – which we ended up thinking was pretty soft but at the time MTV said that people were running and screaming from the TV sets...

MP: Saying it's too fast..

JC: And we were on the phone with Burroughs and he goes 'You know you had a bit of a pace going there for a while, but it kinda slowed down in parts – you should have maintained that pace' So we said fuck, if it's too slow for Burroughs, this eighty year old man, if it's too slow for Burroughs then it's fucking too slow.

BI: I usually watch it on fast forward.

MP: Good..., good, you watch it on fast forward, it's cool in black and white, just with the pictures or just listen to it, it's cool when you just listen to it.

JC: It's a good soundtrack. We did all the music first, which is like a major rule-breaking thing.

MP: Make it audibly satisfying first.

JC: We really designed it, we took the audio off interviews and shit and treated everything as a musical source, you know – it was like here's a person talking, we're using the rhythm of their voice, that's why there was no dubbing in it – we really wanted to have the music of different languages – we were really into that.

MP: We really wanted to fuck with the form. Half of what BUZZ was is taking the form of television and letting it breath a little bit, playing with it and not having a straight video tape, but fucking with it – giving it more of a texture and emotional resonance, then people can feed off of that psychologically.

JC: Fuck with their brains

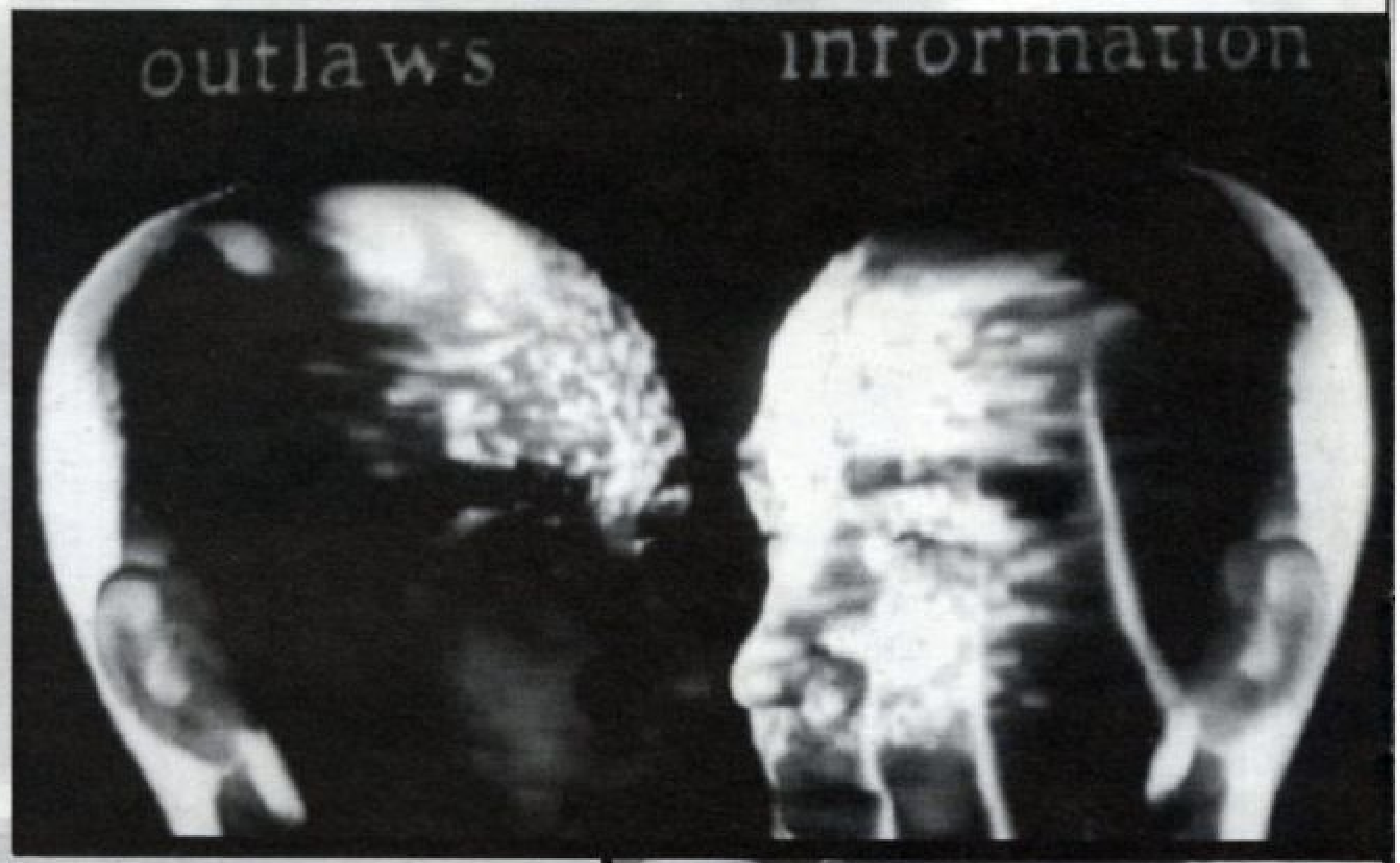
MP: And do it fast.

BI: How did MTV sell the idea?

JC: They sold it on the global tip but they also sold it as the idea 'This is cutting edge TV – this is 1990s TV – the thing is they didn't really want it to be like that – they wanted a magazine show – they wanted more Bon Jovi, more stars.

MP: The latest style, fashion crazes.

JC: We had to fight over not putting in a fashion/style section which is what they kept touting it as. They said 'people want



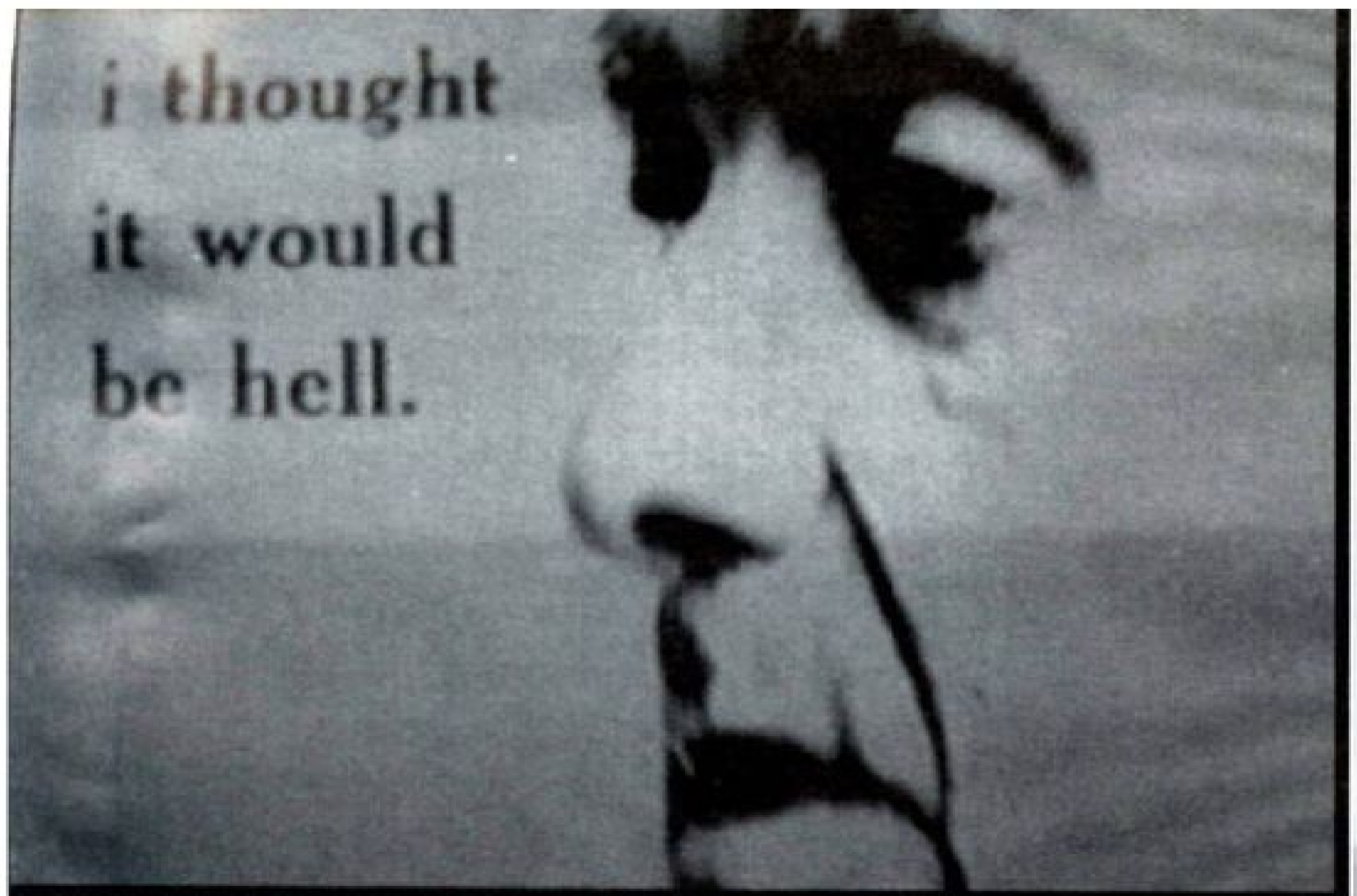


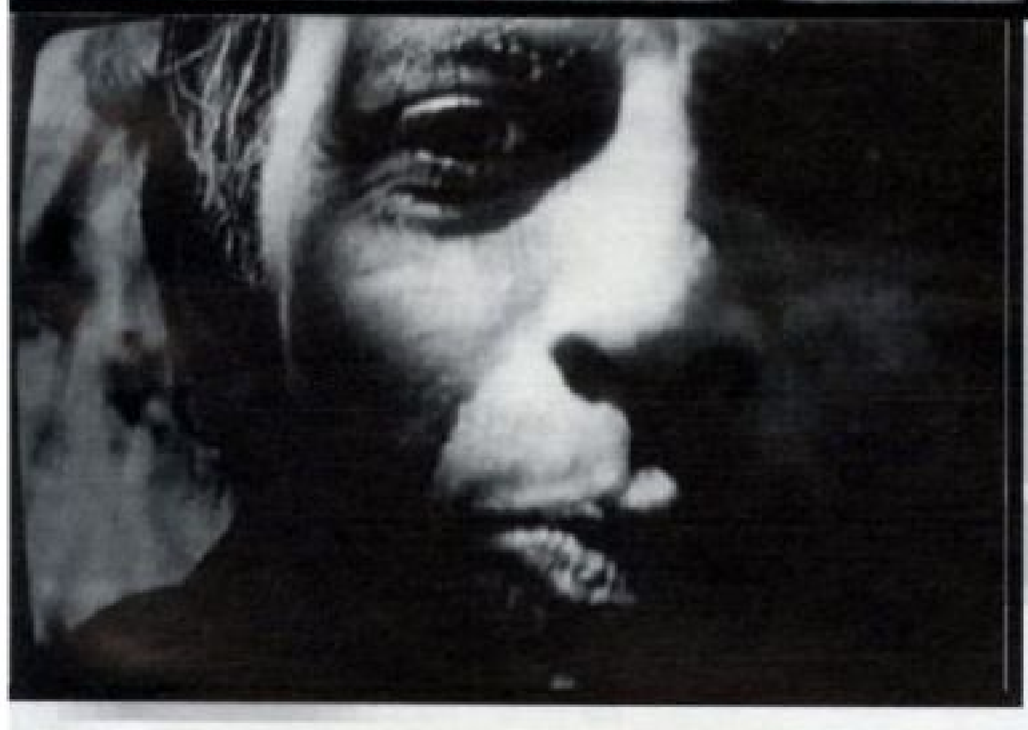
to see stars' We kept on saying 'fuck the stars, you can see them all over the place'. The whole point of BUZZ was that everyone was a star, anyone talking at that moment is a star.

MP: It was more democratic in terms of everything that we shot, everything that we used, the content and form. Everything mattered and everything had a place - people are equal and we weren't there to necessarily comment on things, we did our own share of little commentary or propaganda, but more in the way we were putting it together – that was the statement.

JC: Exactly, exactly, because you would think what sound bite do you use, how do you cut this piece. As far as the whole democratic tip goes, we had a staff of fifteen people whose average age was 22, we really hired people who had never worked in TV before or only minimally. People we could train, indoctrinate and brainwash.

MP: So they do their first piece and we would say no, 'why are you putting that sound bite there' or 'we can say that with some text, we don't have to go into a whole big thing.' It was about story telling in a different way, like a fractured narrative.





using it for our own ends and hopefully making it more available to more people. Saying, look tech is tech, information is information, here's something for people who want to jack right into their own TV show. We really see it as a brain to brain interface.

MP: Some of the letters that people sent us were pretty amazing in terms of MTV's expectations of it, which were perhaps of a broader, more commercial appeal.

JC: We found all the weirdoes.

MP: We found that in the US we were getting two out of ten normal viewers, but I'm much more into affecting those two people, the...

BI: ... Subgenius?

MP: Yeah, yeah... And if they get it.. BUZZ was made for them. Here it is, if you get it, cool, if you don't... we're sorry. It wasn't like 'Hey we're sorry you don't get it (in a derogatory fashion).

JC: It was all because MTV is really heavily into research. They brought us down to a couple of focus groups which is a weird experience because you're watching some people watch your work and seeing what they react to. My argument to that is, "what kind of people answer these ads for people to watch TV for ten hours for $30?" Our attitude was that we were making it for our friends and ourselves and our big gamble was that we weren't so totally insane that no one else would like it either. How do you research something that is totally new? Like with ABC when I worked in news, it was the same fucking thing. I would get phone calls about shit happening and it would be like I couldn't do a story until it appeared in the New York Times. It was like a kind of legitimacy, now that it appeared in the NY Times, we could cover it. How about the old Edward R Mural school of Journalism that says maybe you can only tell people what's new before print. I think TV news still has this weird fucking attitude to print.

MP: They're just afraid.

BI: It's like that with books in Britain, you can't get anywhere unless you've written a book, go on a TV chat show....

JC: Exactly, but it's like, talking about researching new stuff, you can't know if something is going to become big until it becomes big. To us, it was the simplest thing in the world. How can you tell through four focus groups how to make

JC: It's much better to have people who have less to unlearn. Mark and I had to come to this after being brainwashed by a more malevolent force and one thing about BUZZ, of course, it is manipulation, TV is manipulation, anything you put out is obviously you trying to get people to see it. Well the idea behind BUZZ was here's some good propaganda or well-meant propaganda.

MP: I was in L.A. last week and we did this piece on Film Threat and Chris Gore and it was a nice piece on him and he couldn't believe that we wanted to put in a sound bite of him saying that for his magazine's piece on the new Freddy Kruger film he wanted a real child killer to ask the star questions. He couldn't believe our balls in putting that on. We didn't think it was anything outrageous or out of the ordinary, but that it was a real comment from a real person. But a friend in LA said some people thought it was a little bit preachy. I honestly think that we are naive, still naive enough to believe that maybe on a more ethereal or educational level television or technology in the right hands can change people.

JC: We aren't luddites.

MP: Maybe we're naive about it. There are too many cynical people making television and films.

JC: Exactly, and what we're trying to say is that tech is tech, it's neither good nor bad and here's an example of TV that looks really technical but really wasn't. It was all shot on Hi-8, super 8 and home stuff. I think there's a lot in common with the hacker ethic. We were taking it off the shelf, butchering it a bit and rewiring it and

something that's totally new. And we used to piss off MTV to the point of almost brawls by saying 'We are the only people who know how to make BUZZ, and you people just don't know.. Trust us.'

MP: That gets back to your question on what the perception was supposed to be in corporate mind versus our own mind. I think MTV put faith in us but if they had seen anything we had done previously I don't see how they could be surprised.

JC: We had always done sick shit for them, that they had been happy with, we had both been like the token renegade in New York and in Europe. We were the guys who gave them the edgy stuff, creative stuff. I mean how could you put us together and not guess that we wouldn't be focussing on Bon Jovi and that maybe some of our other interests might leak in to this TV show.

MP: They only wanted our minds for a minute or thirty seconds at a time. Why couldn't they just have a half hour whatever the fuck it would be. Then they started to think about ratings and how it would perform. We were staggered.

JC: Cos we always thought, they were a twenty-four-hour-a-day network, we thought they could just slip in a half-an-hour a week of subversion. They're always claiming they're subversive. MTV has always coasted on this idea that they're subversive. First they thought they were the cutting edge, then they got tired of that and then it was the leading edge; like a real big semantic difference. I feel that MTV has come up short and blown their mandate – and I don't think I'm being to idealistic – to actually make something that people might possibly care about, you know. They have the eyes and ears of 50 million people in America, maybe they could do something halfway decent. In Europe we did these pro-social environmental spots and I was talking to them about doing some more pro-social stuff as a consultant after BUZZ. You have Jesse Helms that stands against everything supposedly that MTV stands for. Why don't we use our strength, get people to register to vote, and send money to defeat Jesse Helms? How could there be any backlash? It would be a cool thing to do.

BI: What was the exact perception of BUZZ by the 50 million people who get MTV in the States?

JC: There's two things. First there's MTV's attitude when something weird was kinda mooted: 'Well how about the kid in Kansas, will that kid in Kansas understand it?'

MP: Burroughs is from Kansas

JC: We really started to hate this kid in

Kansas, your know, because he was like 16.3 years old, totally retarded, only bought shit that was on MTV, you know.

MP: It was a typical, repressive attitude towards an audience – they won't get it. They didn't credit the audience with enough intelligence to be able to make up their own mind.

JC: We didn't know about the 50 zillion people watching it but we knew friends and we knew ourselves. We knew we were all virtually fucking bored to tears with just about everything that was on TV, so we said let's make something for us, that's not boring. There have to be some other people out there like us, maybe 1 in 100.

MP: Five years from now, I'll probably say that we were given more freedom that I'll ever get again. It's more freedom than you would ever get on a music video, commercial, certainly more than on network television, certainly more than on a feature film unless you're a major director. We abused the freedom quite frankly.

JC: I don't think we did.

MP: In their eyes we abused the freedom. We feel we just explored our own potential.

JC: After BUZZ was over someone from MTV said, 'We would prefer to think that you guys were unwilling as opposed to unable to make a commercial TV show,' and we said, 'Exactly, if commercial is what we think it is.'

BI: Was there anything in the series which you would consider overtly political, targeted directly at the American government, or any government for that matter?

JC: I think everything is political, but by having a 30 minute show on cultural stereotypes and deconstructing a Benneton ad, taking a tourist board video on how countries advertise themselves and asking people for their own cultural stereotypes, where they're from compared to other people, that's pretty political. By doing a show on happiness and putting in a piece deconstructing plastic surgery ads, 'your first nose job,' and mixing it with some pretty gruesome footage and text. Or doing a piece about ecstatic music and going into African tribal drumming and spiritual possession – linking it to Muzak and Acid House. That is all political.

MP: It's more sociopolitical, I would say, in its scope, than government lashing or anything like that. Jon's background was more newsy and political so I learned a lot...

JC: I'm not talking about news at all.

MP: No, but what I'm saying is that we did more affairs of the heart.

JC: We're libertarian.

MP: Hmm..., OK if that's the answer, you know what I mean.

JC: We weren't Democratic or Republican, left or right wing. We're humanist and liberals. It's like Burroughs quoting Crowley.

MP: 'Do what you want is the whole of the law'

JC: That was basically it, getting it a bit third hand – that was one of the attitudes. It was good to splatter our brains across the TV screens and have people pick at the ganglia. We sat in Amsterdam in a hotel room for five days with a lot of felt tip pens and white boards and spewed through all the potential themes, talked into these fucking microcassette recorders and painstakingly transcribed the good bits back and you know, we came up with the thirteen themes and came up with the 'BUZZ Bible' – a style guide, a manifesto of our intent for all the people that worked on it around the world. That made it kind of an idiot proof show – like it said things like 'shoot everything tight.'

MP: We said shoot everything as tight as you normally would, then shoot tighter, even then we had stuff come back that had this much space around it and we said 'fuck it, blow it up'. We fucked with everything else so it didn't really matter. In ten seconds you could switch between something that was shot on super 8 to a beautiful 35mm commercial, it didn't matter.

JC: It was totally inclusive and a lot of people thought it was highly technical but we used video effects to blow things up, colour corrections, and Abacus (computer effects desk) to make easy loops. We used to reel off these things at ten times and a hundred times speed, how many images could we fit in, how fast could we go.

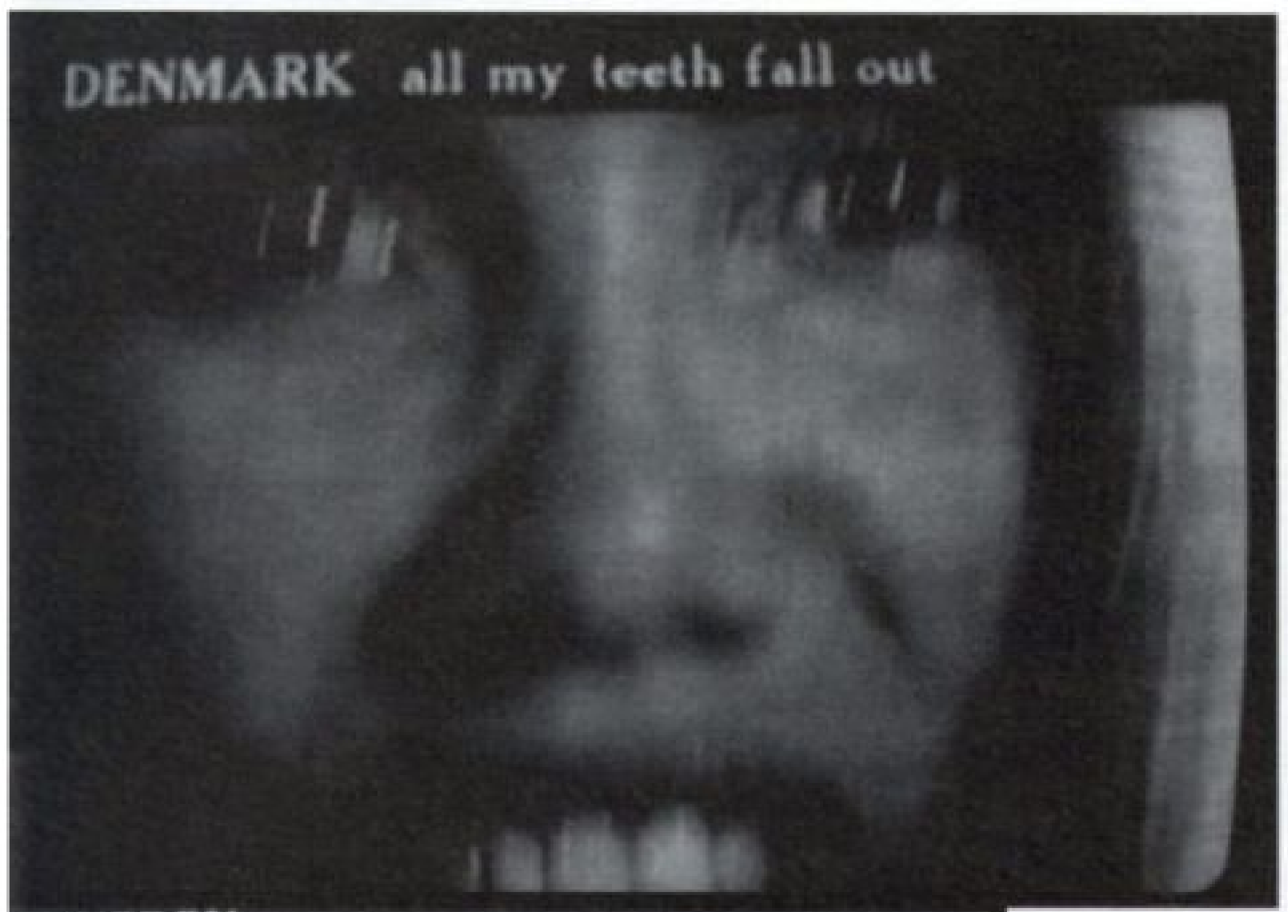


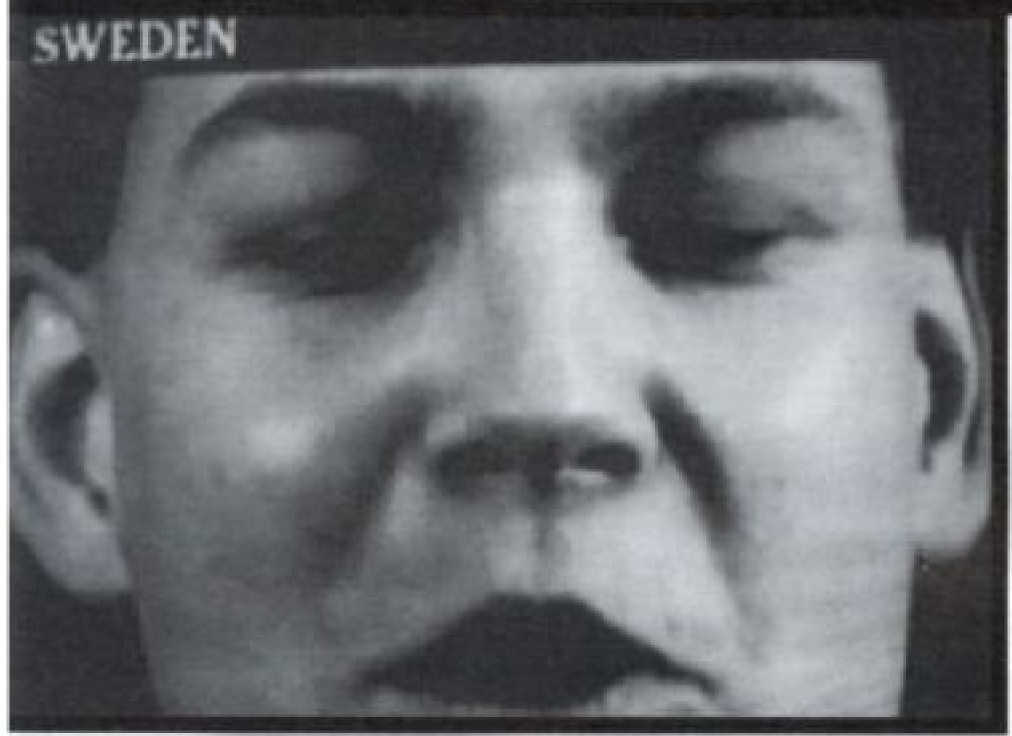


MP: We were talking about having these paintings where you built this canvas from different things, but it would have monitors running with Abacus loops all the time that were running so fast that they become like a painting, like an impressionistic painting.

JC: With an Abacus loops you can get fields – which are less than a frame. It was weird because the pilot was the first time we had done anything that fast and we would see these loops going in the monitors and you'd have 100 images flashing by and your eye for some reason would be picking up the same one until it became a still of this one thing until you blinked and your eye picked up another one. We were really interested in the physical effect of speed. Lets see how fast this mother fucker could go.

MP: It's strange cos I think as the show went on, it got slower, just because we had done thirteen shows. I think if we





went into an editing room now and made a show it would be really fast. I think that if you compare it to music, it wasn't thirteen songs on one album, it was thirteen albums. How many of the same riffs do you want to play?

JC: That was one of the problems with MTV, they got comfortable with the first couple of shows – which was us just finding out feet, and then because it was such an intense thing to make – physically, emotionally and spiritually it took a lot out of us – we wanted to re-invent the show every time, change the style and fuck with our own form and break our own form.

MP: In the first couple of shows we had these little openings, there were five main ones – culture, art, media, music and people. We had these cool little openings for each feature but after the second show we said fuck it, let's throw it all together even more, let's not even give any clue about what's coming because you don't get one in everyday life.

JC: Look out the window you don't see a bird with the label 'Bird'. We also felt like calling a segment our media segment was stupid since it was all media, so we said fuck this and all of a sudden there was a frantic flurry of phone calls from New York saying 'Why aren't you identifying segments or identifying people' But to give MTV their due it was mostly little niggly shit like that. In the big picture we had 90% control, pretty total.

BI: Can you conceive of a time when a program like BUZZ will be on Network TV?

JC: Yes, about five years from now.

MP: Not now. We were talking about this last night. Since I have been back to the States I have talked to even Fox and they had seen a couple of shows – they were supposed to be doing this daring breakthrough television. In a way "Twin Peaks" is really a soap opera, they're not breaking a form. They are just staying in the conventional forms. But what we're doing is developing a new form, part news, part music, part current affairs. It was too much of a hybrid, too much of a different thing. It scares people because they don't know what it is...

BI: ... Hypermedia?

JC: Yeah, Hypermedia definitely, and interactive in the sense that there were various levels to dive into.

MP: I think in five, ten years there will be little BUZZ rip offs. There was a show on Fox called 'After Hours' which showed after we had done the pilot and I looked at it and it was watered down shit. They didn't understand speed, they didn't understand texture, they didn't understand people.

JC: I think the best example why it's not going to happen right now is that a lot of our staff who have all become directors in their own right aren't getting work because they can't be pigeon holed. They can't do pop videos cause it wasn't really a pop video, they can't get into news, it's not news, they can't get into anything because it's a new form.

BI: Like my CV.

JC: Exactly, its the most brutal real world reason why the world isn't ready. If you are someone who's written and cut and shot pieces for BUZZ and you can't get a job in the real TV world at all then something is fucked up. I do think in five to ten years from now it will be in some sort of museum of moving images and people will say it was something cool that no one had anticipated.

MP: My friend just wrote me a letter – he teaches popular culture and media at the University of Illinois – and he's showing episodes of BUZZ to his classes. We've gotten these blue books in New York from someone from 'Alive from Off Centre' (US TV Arts Program) who showed it to psychologists who commented that they'd like to show it to their autistic kids because they have a dream-like quality to them. It's even educational. It's using technology in a way to educate people and I think certain people understood it on that level. But a network person doesn't give a shit about that.

JC: Despite MTV's hype about it we were trying consciously to make something that would be 90's TV if you let it. Let's make Blade Runner happen, let's make a Gibsonesque world happen.

BI: Which Gibson himself wouldn't want to be anywhere near.

JC: Well, that's what he says, but he was in the show and he liked it. But as he said he's totally down on virtual reality. He was on three shows, one was about time and memory and he was talking about digitising libraries and he said if you took everything out of print and digitised it onto disk it was much more likely to be taken out and tampered with or lost... What's amazing I think about Gibson or that type of stuff is that it is futuristic without leaving the present. Look at Alphaville, 1964, totally fucking futuristic and was shot in France in 1964. The future is where you find it and as far as BUZZ being a futuristic show, maybe it is and maybe it isn't, but all we were doing was taking elements from today and intensifying them, cutting out the boring bits. I mean if you take life, cut out the boring bits, compress it and speed it up, you'll spew it back and say it's futuristic. But it's not, it's just today.

MP: It reflects the speed that the culture is going, but within all that speed and stuff is still a person and still a soul and if you lose that you're fucked. And Jon and I would never want to lose that.

BI: Will you be doing anything else in a similar vein?

JC: I don't know, we were just talking about that. The initial ideas, one of the first behind BUZZ, which never happened because we didn't have enough time, was to set up a world wide network, like a database of sussed people from around the world and give them a Hi-8 camera with a brief of: 'what it's like to be living where you are'.

MP: A twenty four hour network of that shit running all the time.

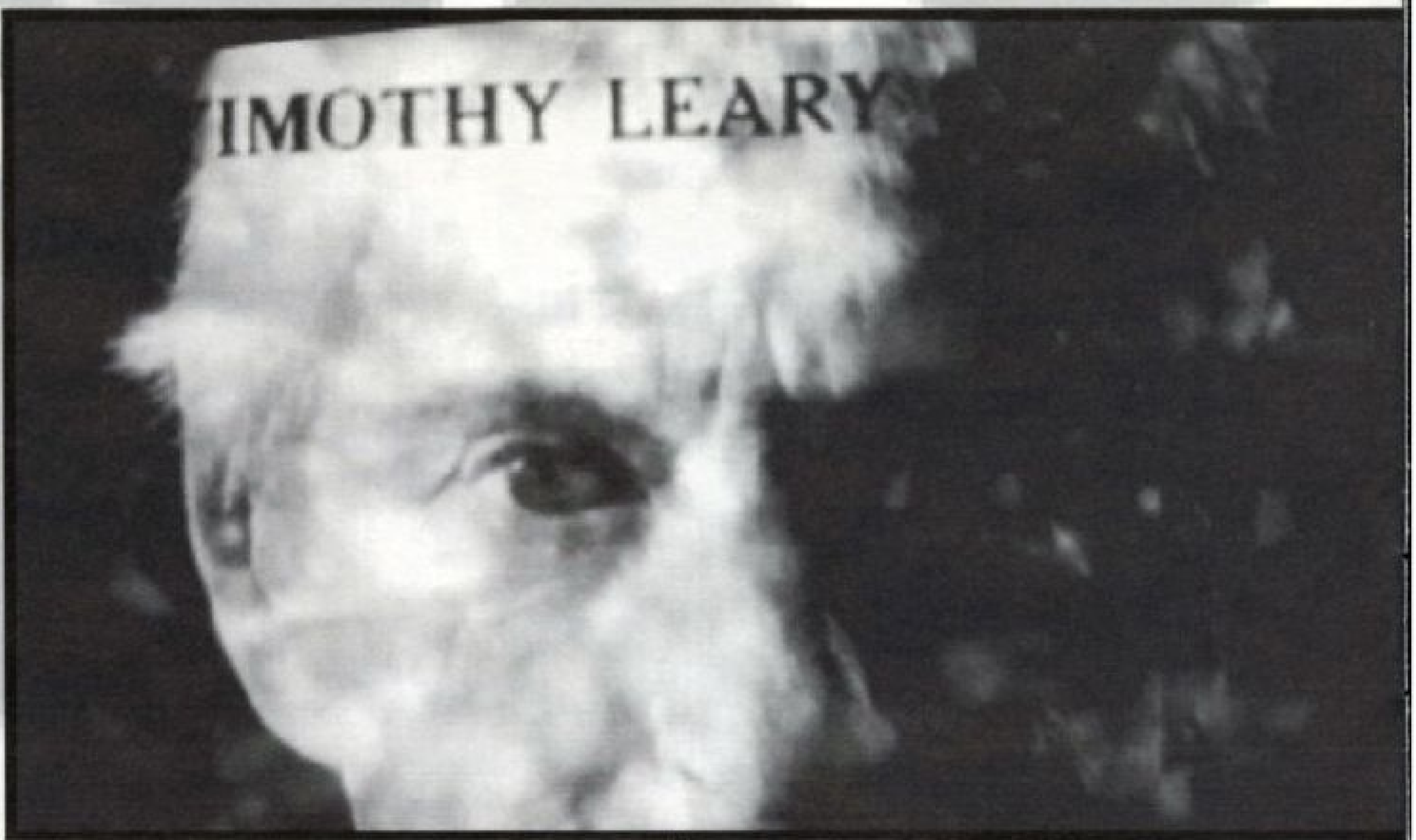
JC: Do it with fax and conference calls, nothing fucking major, and have people in place all over the world to send in weird shit from wherever, stuff from your TV, going around asking people these questions. All it would take is some time to organise it. I think if someone could set that up, and could bring together the worlds of art, technology and media, you would have this amazing resource to plug

into.

BI: Do you find that, with the evolution of a global media 'matrix', cultures are melting together?

JC: Yeah, there's this book I just read called the 'The Media Lab' by Stuart Brand, with Nicholas Neegroponte's (Media Lab guru) idea that there are three circles of culture – TV, Computers and films and how they are all coming together, how you can access things through telephone lines.

MP: They're all together in your mind, something you saw, something you heard in media, culture or computers whatever, is all in the mind, it's all together, do you know what I mean?





BI: An example – visit a video shop from Amsterdam to Barcelona. 90% of the videos to rent will be American films. In the cinemas it will be huge American blockbusters – dubbed.

JC: We hate this idea that it's one big consumer world. East Germany had a revolution to drive their clapped out cars over the border to buy Mercedes. If all one world means is that the multinationals have more places to sell their hamburgers in brand new free enterprise zones it's pretty sad. I think what BUZZ is saying comes back to the first slogan we had: 'Everyone is different and everyone is the same' which is a contradiction but it's also a celebration that we are all different and it's not one big Benneton world and people deal with life and death in different ways but there is also an underlying humanity that connects us all together. The whole idea of blanding out the world into a soya sauce tinted vanilla, with a hint of fish 'n' chips is bullshit but I think that's the way things are going. I think all the revolutions of late '89 will create new markets and cheap labour and Eastern Europe will turn into another Taiwan.

BI: Do you think that was the reason for the revolutions?

JC: Well if you want to get into conspiracy theory about who's really running the show, about the extreme haste with which the two Germanies united and about how a permanent underclass of the former communists will replace the Turkish guest workers, then...

MP: I think everything we did up to BUZZ led up to it and everything we've done now will be like it. It may not have the same specific look and feel but it's always going to come from us. When Jon and I are back together that's what will come out and things that we do separately will have their own vibes and when we do something together again it will be BUZZ

JC: As for BUZZ looking at the whole world, instead of just the cultural Meccas, it's a matter of having an open-eyed view of the diversity of people and you know I'm as fascinated with a mass murderer, as I am with an altruist. The idea that Mother Teresa is as much of a pleasure junkie as a heroin junkie, she gets off on what she's doing, she's feeling something physical from that. There is no altruism. I think we're going to do stuff that reflects how much we've been made to think and feel. Any time you make a story and make it interesting and real for someone else, you have to use hyperbole – no one wants to read a dry description of fact – to make something real, to make a 'strange country' real for Americans or for British people . You have to emphasise stuff, you do have to enter the realm of velocity, the world of brightness or darkness, otherwise language, pictures and all these tools are not always enough.

MP: Crank up the volume on them while using them, use everything all at once sometimes use them together, against each other. It's the way our minds work.

BI: Has the making of BUZZ changed you in any way?

MP: I find myself so much more inquisitive now – whether I'm in a bank or on a train with strangers – observant and inquisitive, I'm not afraid to ask people. I find that 95% of the time that if you're open to asking people and you're honest...

JC: People are dying to talk to you

MP: I took a train between Baltimore and New York and I had four strangers, bantering back and forth, pouring out their hearts. All you have to do is ask a couple of key questions... a 17 year old girl living at home, getting up at 7:00 am to go to work in a diner. I was fascinated, people are fucking fascinating.

JC: The thing about BUZZ is that people are equally fascinating and you can learn something from everybody. Like when I first came to England I was on the Tube and I thought, 'Wow, these are fucking English people'. Looking at them I thought 'yeah they do look different,' you know? When I went to Sweden, I thought 'A country full of Swedish people', I know it sounds stupid, totally fucking retarded, but..

MP: If you stop learning, you're dead, if you stop caring you're dead.

JC: Yeah, talking to people on the street – tell us about love, what is love to you – tell us what your ideal lover is. There were very few people, who said things that were banal, – we figured there's enough banality, lets find the interesting bits. People were dying to talk to us, to a fucking guy with a huge Betacam on him.

MP: The camera can alienate people as well, you know. I think a report in a pure print sense has an easier task because you





can break down the walls; a microphone is a lot less intrusive than a camera and light. People think that they're 'on' and have a hard time. So using small video cameras, you can sort of spy on people.

JC: It was funny but my uncle Ben was a photographer and he built all these little cameras that would shoot this way instead of that way, so he could get candid stuff. He always talked about the way people put on a face and you could watch the instant the person knew they were being photographed and see that they had totally changed. He was really into spontaneity and he ended up kind of degenerating and really believing that if he turned around from something it all would fall apart. Like it was a set or something. If he didn't see it it wasn't there and when he turned around it would reassemble itself. Which is kinda an interesting idea.

BI: You originally asked me at the beginning of the interview 'how did I get weird?' Can you now answer the question yourselves.

MP: You know what, you want to hear something funny. I have a dictionary in my bathroom, within easy reach and I would look up certain words used to describe my work. Like when they described BUZZ they said it was weird or abstract and obscure. I looked up 'obscure' and it is a bad word thing because it's hidden and it's not revealing of what you want to show to people. Obscure music is great because only a small group of people know about it. Weird is simply not average, not ordinary and you look up average and ordinary and it's middle of the road. How does anyone not get middle of the road? It comes from your upbringing, music or whatever. I got turned onto drugs which probably had a great deal to do with it.

JC: How did I get weird.... my Uncle Mike. I grew up in a suburban town in New Jersey, this guy went out to Haight Ashbury in 1964 and became Tim Leary's archivist, he used to send me Kelly Mouse, psychedelic drawings, underground comics and Grateful Dead records. He turned me onto hallucinogenics, pretty much like a Frankenstein's monster. How do you create a weird guy? You give him a lot of weird books, comics, a lot of input and in a sense, I suppose you could say that BUZZ was a good hard attempt at making a lot of people weird.

MP: Not average

JC: It's all to do with the stimulus you give or do not give people. When you take a rhesus monkey and you only give it a wire-framed mother it becomes more fucked up than the one that has a stuffed toy which is more fucked up than the one that has a real mother. I don't think there is enough stimulus in the world, and while we talk about the speed of modern life, there is enough good stuff. I wish there were 10% more good books, 10% more good bands and movies were a little bit better. Even as a start with BUZZ we were trying to improve our patch of ground, just a little bit, so that it might make a difference with this critical mass of weirdness or coolness or whatever, that it might make people want to know what went into it and how did they get these facts? Why does this person in Guyana, even though she's black, why does she remind me of this white friend of mine from Wisconsin in what she's saying? The idea was let's just put more good shit in the world, let's have virtual reality salons, let's make it better and easier to use tech, easier to use interfaces. That why I like MAC stuff. I don't have one myself but I have 'Windows' for my IBM. Give people a better interface for their day to day life and they'll probably end up being a little more sensitive, a little more tolerant.

MP: And more people should eat acid.

JC: And more people should eat mushrooms. More people shouldn't be afraid to get out of their heads.

MP: Experimentation, that's how I got weird. Which is saying I'm not afraid. And not being afraid, you open yourself up to a broad range of possibilities.

JC: And playing. Homo Ludens, instead of Homo Sapiens which is thinking man, Homo Ludens is playing man. More play. It was the great thing of BUZZ for us. It was definitely a job, people blamed us for being workaholics. But in some respects it wasn't a job, because it was fucking fun and we were doing what we wanted to do. The best thing I learned from BUZZ was 'do what you want is the whole of the law'. Do what you want and bring some joy into it and if you get off from it, they'll get off from it and pretty soon you and they doesn't matter and you'll all just be people getting off.

MP: That's the whole thing, there was no audience, we were inside the TV and the people were out there and at its best it was the same thing. There was a thin film that divided us. It was the same thing.

JC: It's like, 'come on in the water's fine'.

BI: Clive Barker said the very same thing.

JC: Yeah man! and I think the word weird should become average and lose its pejorative sense. I mean I was a weirdo in High School, I was embarrassed you know, I spent my whole fucking life trying to be normal, I wrote poetry, played soccer, I went out on walks by myself, nothing unusual, but I felt so embarrassed, I felt if I could only be normal, you know?

MP: The best thing that ever happened to me was that I was an athlete in high school and when I hurt my knee in my senior year I couldn't play professional football. I'm all for sports, it teaches you incredible things about collaboration, teamwork and is goal driven in the best possible sense of the word. But when I hurt my knee, my dream was shattered and I found music and drugs, writing and deejaying much more fulfilling without being so committed to one thing. Weirdness sort of builds...

continued from page 19 environment.

BI: Even with the limited resolution?

The resolution is not an issue. This is one of the things that we discovered. What is important is real-time simulation since the animation is a critical issue. There are some experiments done back in '78 on the effects of visual resolution and what was and was not acceptable for three dimensional geometric modelling. I know because I studied it. What they had was this 3-D brick-like construction that rotated and they did these experiments where firstly they gave people pictures at 1024 lines – lets say – hi-res shaded, then 512 lines, 256 lines then the same image at 64 then 32 and the people couldn't recognise what it was when it got down to 64 squared. So what they did was they animated it at the high resolution right down to 32 square and everybody knew

The alienation of people from their real world sense and indoctrinating them with generated senses or sensory feedback is classic sensory deprivation as tested by the CIA, the KGB and others…

what it was.

The issue is motion and real-time animation. We call motion something else incidentally. Motion in our business is 'motion modelling' because the Expality has full motion output and we will have a product later on which puts Virtuality into motion. But the issue is the animation – it's critical, it doesn't matter whether you're looking at an aircraft shooting past you or a motor bike passing by, you don't look to see if they are wearing silver toe caps on their boots, you look at the over trajectory that the vehicle is taking. You already have a model in your own mind in high resolution and possibly, because I'm not a psychologist, you translate the image in your own mind to the moving image. The issue is you track, move and act on the moving object so image resolution isn't such a major issue in VR applications, but obviously the better the resolution of the display the better the overall feel of the simulation. However the weighting shouldn't be applied as we weight static images in 2-D computing.

BI: Motion base?

We have a working motion base. We're very aware of the economics of putting that into market in at the present time. We have something not half a mile away from here, in a factory, running. We're doing that for a specialist simulator project which was always the reason we would be doing it. In the leisure field, bringing that in with VR isn't stacking up economically. In my view hydrolics aren't economically worth wile. However, there are some developments coming through in extremely efficient linear motors and we're very interested.

BI: How does or will your system connect to the real world, ie. telepresence etc?

Yeah, operating autonomous vehicles and robots or whatever. I don't want to belittle any work going on in that area. Once you have a graphic and a mapping system of the body, a general control system that is monitored to an adequate refresh rate, autonomous control is really just an engineering problem. It's just a matter of finding out what your vehicle is and how to cross relate that to your VR environment – I see that as quite an interesting area.

We're doing work with some Australians where we're putting video into the Viset and what were doing is putting little stereo cameras in glass bowls in a zoo, and you have the meat or animal food coming out from underneath the camera so the viewer doesn't see it. The user puts on the Viset and looks up into the lion's mouth as he comes at them, or he is down in a snake pit, to me that's VR.

It's a trivial autonomous control with a little servo platform with a camera on it. Admittedly, as quickly as possible so we don't have any lag characteristics - lag is the bed bug of VR systems - we spent a lot of time in the Expality system to eliminate lag as much as possible.

BI: As you're developing and experiencing the virtual world have you noticed any concrete effects on your staff or general testers relating to the real world?

That's quite an interesting question. Everyone is quite concerned about potential psychological effects, since we're working with equipment which will necessarily horrify some and intrigue others. The alienation of people from their real world sense and indoctrinating them with generated senses or sensory feedback is classic sensory deprivation as tested by the CIA, the KGB and others....

I think it's quite interesting, we're very careful about the human factors and the refresh rates and things like that. You can have some problems with triggering epileptic fits and things like that. We're very careful we don't go over those border lines, especially for extended use. We pay a lot of attention to human factors and we have a lot problems with it. Other companies who may not necessarily be working in VR have the same problems. I believe that companies involved with vehicle simulation have similar problems – we have found that, especially with the driving simulator that we had to stop all the software developers – the youngsters – going straight home afterwards. They're not supposed to be using the system within half an hour of going home because early on we discovered that everyone was going out with highs from the race and when they went home they would put their foot to the floor. I don't know if that's normal for simulation.

People are very attracted to our little walk about in the forest; its a pathetically simple little forest with trees, with little crickets in the background. Its really crude – so crude you wouldn't believe. We call it our starter pack and we like to have people start off in it to just to get used to the idea and the hang of it and get relaxed with it before you get into something like VTOL that can really blow your mind because there's so much going on. It's a real action freaks type of game. In that context we find in particular, women and people of a more passive disposition love getting into the forest and relaxing.

The big thing about the forest is when we put other people in there, we obviously can connect up more than one person – everything we do can always be connected up to more than one character. So, for instance, if you're flying and I'm flying, we can both fly together in the VR world. We did that in the stand up unit, so you see me as a robot and I see you as a robot. There's microphones built into Viset so you can talk to each other and it's quite uncanny when you're separated by distances. You have a really interesting communication medium.

I have this goal at the moment with a VR environment where dad and his son or daughter can go to a simulation centre – and they link into, what we call, Game Net, an international network linking up countries. The same will happen in the UK and Florida and they'll be able to talk to each other and see each other as representations they choose before getting into the VR. They could be a robot or a monster and even design it beforehand. So we can do this right now and it's just a

question of the infra-structure. That's why we're linking this in with some pretty big people. Once there in they're the two Dads could go over to a virtual bench and have a chat, sit there talking together. But when your perception is projected into that environment you have the sensory depravation to convince people that the environment is real. You have the analogy of a walk in the park, but you have just transcended continents - which is actually quite powerful although it sounds quite simplistic. If you really can convince people that they're there—they don't believe anything else and they loose consciousness of their real environment – the filthy street in the middle of London or Tokyo...

BI: Or desolate industrial estate outside.

Exactly, in reality they're in this beautiful wood with little birds singing in the background – they are talking to a mate who they never actually met while the kids are over in the simulation park dogfighting.

BI: The phone phreaks and hackers have been doing that for 20 years. They build up mental images of people they know quite well, living on the other side of the world who they have never have met in the 'flesh'. Their entire mentality is different on how they see the world and how they interact with people.

I think people have been doing that on short wave radio and then there was telephone, then computer networks and now we're adding more sensory information – we bring it to the mainstream public because now we have an environment that is natural, totally an environment that people want to get into – whether it's a golf course or a seaside setting which you can pre-select before getting into it with your friends. It's possibly a whole new medium of communication.

BI: Isn't it just an elaborate excuse to play? People can get into the VR world and tear loose, where they wouldn't in norm concrete 'reality'.

Yeah, if you look at the destructive effect of television on society and on families, here we have an environment that is fundamentally about interaction and communication with each other, in a virtual representation of each other hence losing the normal social inhibitions with friends and new friends especially. In that context it could be a lot more positive than things that have gone before.

BI: Still the cost of communication between continents is quite high?

It's all a question of markets, it has nothing to do with technology. If you had the market you could produce the technology to a fraction of the present cost and that's what will transpire. It will happen extremely rapidly because the entertainment capability of this new technology is well known to people who have been working in it but you make a leap when you have a finished system, when you have it all there and it all works and it all synchronises. The entertainment possibility of the product is then enormous and that's what will drive the market and that will drive the price down. There's no reason why the price doesn't come down so that everyone can access it at home or wherever they want and that will also drive the technology forward so that the entire thing becomes more convincing.

If you saw the first black and white television signals when it first came out you'd would have probably thought, 'Jesus this is decades away.' You can get the act cleaned up pretty quick.

BI: Do you have definite plans for linking centres?

We've just opened the second one which is in Birmingham, another is opening in Chicago then next month one in Tokyo. Linking them together is an economic problem. technically its very feasible. It has to do with wether you can get hold the economics and justification for an ISDN line between the two centres. In that respect its very much something were conscious of, that's going to happen when a major operator has 2/3 sites on. We're looking on progressing that in the future.

BI: This is an inevitable question, with virtual representations of people: how about VR sex?

Oh god, here we go again: Teledildonics! I was asked this question the other week. I'm not going to say 'watch this space'. Our philosophy at W Industries is that we're primarily involved with VR applications and technology full stop. I'm not going to sit here and dismiss any application of this technology. We launched our force feedback glove at the end of March '90, so were going to have some fun with that. I get a lot of people writing into me with some awfull interesting ideas.

BI: Awful and interesting...

Heh, Heh, Heh, I'm fairly liberal. You see I'm not going to sit here and say 'gosh horror', throw my hands up in the air and say 'we're going to make an orgasmatron', I'm merely going to say that you can't dismiss anything. Certainly the whole thing is about sensory manipulation and obviously that can extend to force. We all respond to nice words and kind thoughts and other sensations in a very human way and whether that's transmitted over a fibre optic line across continents or whether that's with somebody who's actually touching you who's next to you .. what's the difference? The difference is a bit of wiring, between the pressure, the force, the combination of words, the feeling and the environment. It's merely an extra-sensory augmentation, to sound and vision, the other sensor into the human body being the receptive system. So I'm going to keep it nice and external like that and say I don't think anybody should be commenting, 'let's get some stuff ...' (laugh) I nearly said have a look at it, but I'm not going to say that (deep chuckle).

Some of my Japanese friends are absolutely intrigued with it and I'll leave it up to them, I guess. There are a lot more qualified people that have contacted us

> When your perception is projected into that environment you have the sensory depravation to convince people that the environment is real. You have the analogy of a walk in the park, but you have just transcended continents

with a view to something in this area and I understand money is not an issue.

BI: Any weird people asking about other strange VR applications.

We have a very interesting people approaching us with interesting topics. I make it a point of never dismissing anything, primarily because no one knows what will be successful. Case in point is one that we are taking quite seriously is an entertainment application to do with dancing. It will train you how to do the dance steps in VR, it's designed to run with our new system. You can actually do all the dance routines, get in there with Micheal and all the rest of it.

BI: I imagine his face would look better close up in VR with a low polygon count.

Of course this would be texture mapped (placing photo's on 3-D objects in VR). Which means you have a higher quality of visual representation and that's



Battlesphere: The most sophisticated game that makes use of the VR environment liets the player battle in deep space in a Star Wars styled dogfight. Teams of playrs can play against each other or link to take on the roles of Pilot and Gunner in the same craft. While one of the favourite in-house games at W Industries Battlesphere remains unreleased because of its high level of disorientation due to lack of ground and totally free movement in 3-D space

all up and running.

BI: Do you envisage a time when the technology will be down to reasonable size?

Yeah, less obtrusive. If you actually look at the essential requirements of VR, its sensing position of the body and providing a stereo visual image, and a audio image to the body. Obviously we'd like to rationalise that all to a good pair of Sony Walkman earphones and a pair of nice glasses in terms of providing a good visual frame around the eyes. It's purely down to technology and the technology is very very close now, just on the horizon. Things like holographic collimated lenses printed on substrates which provide high resolution graphic displays. Very much over the horizon, but the horizon being only a few years away. That's what we're building towards, this is the primitive but hardy equipment for people to get started on. Once they're have all there software ported onto the systems and have all the methods of man machine interfaces developed for communicating with software, then everything is downstream from there. It's just a problem of cable management and plugging a few tools in here and there.

BI: Do you have any plans for home based VR systems?

We are developing a system.

BI: Two years down the line?

Oh yes, several years away. It's easy to do the technology, it's difficult to get it into cost.

We're now working with chips that haven't been released yet that are absolutely awesome in comparison to what we had a year ago. In that context of processor hungry applications like VR are going to deliver. Its delivering which is important. There has been a lot of philosophy and hype about the potential of VR and aspirations have been raised in relation to films like Lawnmoreman which has fabulous stop motion computer graphics.

BI: That take 3 hours to render.

Yeah, actually now we're seeing processor power coming through at price points which at least match a curve that will deliver that resolution in realtime within a reasonable time scale. The next generation will be hundreds, if not thousands, of times more powerful than what we had before. Nice thing is that for a small company like us, the technology is accessible. We don't need DEC, IBM or Silicon Graphics budgets to put this stuff together. Its quite cheap, quite straightforward and is software driven.

BI: How are you progressing in the setting up of VR Leisure centres?

That's going very well. The Legend Quest centre which was launched in February is doing well, we're at level five of the ten levels, 50 rooms your roaming around in. It must be the largest VR world ever built.

BI: Has anyone developed the VR user interface beyond the two finger pointing used by NASA. Is there a GOD interface yet?

Not yet. I think its fair to say that the foundation is in existence here. We've been concentrating on getting the infrastructure developed. By Christmas we're going to be launching some new products, with a quality and fidelity that will really let us concentrate on developing the interface, dialog, metaphors and standardisation. Everyone is interested to see how that manifests itself. We've kept our noses down for the last year or so since Virtuality was finished, piled everything back into R&D to generate the necessary infrastructure to support a real interface. We use a lot of different metaphors in the entertainment experiences, but those are fundamentally based on the space joystick, since the throughput people in the triple military environment of the arcade world doesn't support a glove.

Our new systems we're very excited about, more excited that before Virtuality was launched.

Your looking at a higher resolution...

Higher everything.

BI: Any competitors in the field of VR leisure applications,

Not at the moment. Any potential competitors are asking us to help.

We're really concentrating on system development, getting head mounted displays down to a few grams, getting computer power up to several hundred thousand of MIPS, instead of fifteen which is what they are at the moment. We're developing the next generation of VR systems; not variations on existing hardware, to open the pandora's box of applications which everyone alludes to but no one can deliver yet.

What I think is going to be key in the near term is creativity, innovation and the ability to get product to market. What's changed in the computer market in the last couple of years, and that includes VR, is that you don't need megabucks to accomplish that. There's no real proven market in VR to substantiate heavy investment in some sort of esoteric application in VR. That's a major problem for large computer companies at the moment.

BI: So your still safe.

I don't see it as safe. We're really looking forward to some serious competition. At the moment our products are embryonic. Everyone says that 'such and such is a load of rubbish' and we like that. Criticism is fantastic. Because we say 'What are you comparing it with?' They're

isn't anything to compare it with currently. I'm sure there will be.

BI: One thing that doesn't get addressed is the psychology of VR because there is certain psychological factors involved with VR.

Coming from a formal research background I get a bit perturbed about people who say they're doing research on VR. and when you go to look at the data, the table and the normal measures you'd expect to see in a proper research product and theres nothing there. It's all observational research. So to the extent that everyone else is doing research in VR, I guess we are, but I would only classify it as observational research. We have people working on looking at certian parameters, isolating those parameters and testing them for effect. For example, the issue of the limitation in quotes people say are imposed in respect to active resolution. That's the biggest load of baloney you'd ever heard. Because in fact VR has the highest resolution of any media.

BI: But you have to move your head.

Exactly. The point is your perception of the world that your immersed within is a perception of the whole world around you. Not just looking at a single screen. I think the reason why people haven't understood this and why its been difficult to get this idea over is that so few people have access to VR. Yet so many people comment on it. And when you ask them how many times they've been in the system they probably say about three times in their life. You have to spend time in it, like several hours in it. Even what you'd assume to be educated commentators don't spend enough time. Again we come back to this fidelity issue. The systems are very embryonic at the moment, but very soon they're going to be, I believe, good enough for certain applications which people allude to.

To that extent the research that we do in these areas, the psychology in terms of the complex understanding of parameters can be measured, how we can increase or move across the limited power of the computing system relatively to what particular area to gain benifit of that perception. That's the issues we're interested in. Do we build more complex world, more interactive systems, what is the threshold of unreal VR.

BI: You seem to have an evolution of games, with the simple walk into the woods to VTOL and the most complex which is Battlesphere where you have no ground and no up.

We have some fairly radical new ones. We did an Escher model the other day, which is so weird; if you had total immersion. I guarantee that you'd floor people because you can really play on their perspective and really play on the visual cues to the extent that you induce total disorientation. That is a very powerful construct to actually look at within the realm of immersing people in artificial realities. I think we'll do a lot more work on that, we're certainly never going to unleash it. But, it's just a pointer that alludes to the possibilities of modeling dimensions other than our world. In that case it's a play on the fourth dimension. A dimension that we don't perceive within context of the models that we build up from birth in real life. VR hold the promise that we can transend that and explore different ways of displaying and modelling information and different ways of playing within those hyperspaces. Obviously this medium is the only medium that can truely represent that.

BI: Battlesphere isn't available anywhere in the market.

It's quite disorientating.

BI: That's obviously why its not in the arcades. People are barely getting used to looking around.

Exactly. We have a major problem with that. While we're three years ahead of everyone else and think its a great game. The issue of disorientation is big issue. I think the reaction from the operators are 'Hey, wait a minute this is a sexy game, you can sit next to your co-pilot and blast the hell out of people moving around this intergalactic game' But really what people want to do since its the first time they've seen this thing is to get in it move around, look up, right and left. They want to learn how to move around and that's enough. And to a certain extent we've reigned back a little bit to provide people with enjoyable experiences which can to extent of its small installed based – introduce people to VR. What we have to do then is move onto the more detailed, mores sophisticated, more intellectually challenging games. They will be games because I'm a great believer in challenging and furthering the concepts through enjoyable use. I think that's a great analogy, a great metaphor to use. I do not want to produce VR hypersafe Escher experiences stuffed in some research lab that are well reported on, but no one can have access to. I'm a great believer in thinking this is a load of rubbish until you see what the public reaction to it is. You should challenge frontiers but measure your challenge by measuring the publics reaction.

We're launching two new experiences in October – second generation experiences that we've learned everything that's bad, everything that's immature, everything that's not relevant in our first experience. We've spent six months working on these two new ones to substantially improve the software content, ease of use and the intelligent adaptability of the system and software to peoples use. In Dogfight you have a navigator behind you who's VR and when you look around it talks to you. We're authoring our CD's now and we have massive amounts of statements and comments and everything else. Obviously the experience monitors your performance and the guy gives you more or less help as depending on your performance. The main thing is that there's someone in the plane with you, when your trundling down the runway it says 'now ease it forward, pull back, a little bit more, now come on..' Their's someone helping you, a buddy if you like. Its just weird, you turn around and you see this guy and his lips move. Its very crude but its the first step. You can also see your mate next to you in his airplane and he can talk to you but that's across the mic. It's a totally networkable system.

BI: I did some testing with a program called Eliza, where I sat people down to to talk to this BASIC program modeled after a psychologist. I explained to them before hand that the program was only 50 lines long and had a very limited fixed responses. The weird thing is within two lines to typing to this program people had poured out the deepest darkest secrets from the depths of their soul to this machine...

It works and it's powerful. I think the reason is I that we think that we're more intelligent than we think we are. The reality is that if you can represent in some way a comfortable environment where the dialogue between you and the machine exists it is interactive. Then actually people are quite prepared as animate species to cohabit, coexist and converse with a machine. I guess our little navigator is a manifestation of that autonoma that can support that dialogue within context of your threshold of believing the environment around you. It quite logical that this blocky character is actually real since your entire environment is reduced to that level, interaction, the whole spontaneity of everything happening in that environment is real. That's more powerful than visual quality. ■

systemcrash

BMGH

A unique new computer virus on the PC has been spotted in the US.

Labelled the BMGH virus by frustrated victums, the virus is said to be the most despicable of all known infections because it doesn't touch any of your data but attacks the users by freezing the computer and playing a high distorted rendition of Barry Manalow's Greatest Hits. No reported cases in the UK.

More tagging

Computers aren't the only valuable things being tagged these days. For a moderate sum in the US, along with an annual registration charge you can have your pet implanted with a microchip the size of a grain of rice with a dedicated serial number.

When your favourite animal is lost it can be identified quickly by veterinarians and police who will be equipped with a special electronic gun that can read the serial number when aimed at an unclaimed pet. This can be arranged by dialling 1-800 INFO PET in the US. A similar system is being implemented by the RSPCA in the United Kingdom.

The developers of the system, I.D.I. Identi Corp of Boulder Colderado, say that they're currently using more sophisticated versions for diplomats and important businessman travelling abroad to hostile countries.

Other uses of electronic tagging include identifying farm animals when they come in for feeding and helping prevent the kidnapping of babies from St Thomas's Hospital.

British Coal has also set up a similar system at a test site, Lea Hall. The system logs miners' movements on a computer as they pass by electronic readers in various

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Virus Creator in Extradition Order

Richard Brandow, former Publisher of MacMag is currently being pursued by King County Seatle, DA for the creation of the MacMag Peace virus in 1987 on behalf of Aldus Corp creators of Page Maker and Freehand.
In the precedent setting case, Richard Brandow could face up to ten years for the propagation of the virus if the extradition orders are accepted by the Canadian government.

The benign MacMag peace virus was originally released to an unsuspecting Macintosh community by way of a new products Hypercard stack uploaded to Compuserve. It then when onto infect a quarter of a million Macs world-wide. The virus also managed to get on to a development system at Aldus resulting in it being shipped with shrinked wrapped packages of Freehand, further infecting customers computers.

The actual virus was designed to pop up on the first anniversary of the introduction of the Macintosh SE. Once it had displayed the message of universal peace from the publisher and the entire staff of MacMag, the virus deleted itself.

After the virus had been heavily tested, it was left on one Mac at the magazine's office to see how far it would spread before it would trigger off automatically.
Reaction to the infestation varied in the extreme. Some saw it as a great laugh while others Macintosh owners compared it to being raped.

Stolen Computers

A new security device could mean an end to the type of employees who steal office computer systems or simply conveniently forget to return them.

White collar crime has cost the insurance industry more than £2 million a day in the first six months of the year. The radio-controlled electronic stealth tag is designed to set off a central alarm when the computers are removed from the building.

Fax Tappers

The US Air Force is investing $30,000 in fax tappers, each of which is capable of monitoring four phone lines for "communications security violations". Every time a fax is sent on one of the lines, a copy is also sent to a laptop computer. Forty of the machines have been orderd so far. Each of them is also capable of monitoring and storing modem communications. Black Ice estimates that a similar jury rigged system could be made for about £25.00 excluding the cost of the computer and modem hardware from parts available from Tandy.

MI5 Records

According to a recent Guardian article, MI5 has more than a million records on individuals it considers subversive or a potential threat to national security. This would mean that one person sitting on every full double decker bus is deemed by MI5 to be a threat.

This revelation coincides with information that MI5 no longer destroys its records. MI5's retention of files is being contested at the European Court of Human Rights on behalf of Harriet Harman, Labour's health spokeswoman, and Patricia Hewitt, Neil Kinnok's former press secretary, now deputy director of the Institute for Public Policy Research. MI5 files are kept in the registry at its Curzon House building in central London.

Whistle-Blower BBS

An electronic Bulletion Board System (BBS) has been established by U.S. Representative Robert Wise, D-W.Va. for US citizens to report on government waste or fraud. Called the Whistleblower Bulletin Board, Wise's office say the service is totally confidential.

It can be reached on 202-225-5527.

The Rainbow Warrior

A Dutch company is now selling DIY kits of the much sought after rainbow box, a dialing key-pad which can generate all the tones used by the telephone companies to route and control calls.

The $200 US kit, when assembled will generate the standard DTMF tones as well as the tones found on blue boxes, red boxes, R3, C3, C4, and C5. The keypad is password protected and includes features like number scanning, tone sweeps and tone step, guard tones and adjustable timings for precise operations on COCOTS.

While the kit is straight forward to build, no instruction manuals are offered on how you actually use the box in the field. For more information write to: Hack-Tic Technologies, P.O. Box 22953, 1100 DL Amsterdam, The Netherlands

Big Brother

The FBI has expressed an interest in 'modernising' the American digital phone system by making remote surveillance a built-in feature. Athough they currently insist that it's impossible for them to intercept calls on digital systems, this is known to be untrue; all it requires is different equipment. If the FBI is successful in convincing US legislators that wiretaping features are necessary on new telephone exchanges since there's a difficulty in doing it on the current systems, then mandatory surveillance features would be legislated in the US for all exchanges. Penalties for non compliance will be severe.

In the past to get a wire tap operating was an arduous process. With new technology specifically designed into the phone system the process can be accomplished with a couple of keystroke – easier than getting credit information. While the same laws will exist for the procedure of getting a warrant etc, the sheer simplicity of the action will leave it open to abuse. With 1984 come and gone, it's proposals like this which will become entrenched in law before the public is aware that they even existed and virtually impossible to get them repealed.

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parts of the mine. The electronic tag rides on the helmet light's battery pack so the miner will never be without it. This system is designed to facilitate rescue by locating the accident victims in case of an accident. Plans are underway to expand it to other collieries and mining managers are currently visiting the test site to see the system in operation.

Closer to home, you can keep track of your kids by installing BeeperKid, a child monitor/locating system based on radio frequency technology, which sounds an alarm when a child strays further than 30 feet. To help find the child, the parent activates the alarm on the child's device. Price: US $99 including recharging stand. From A&H International, 737 Bishop St, Suite 2400, Honolulu HI USA 96813.

A similar more permanent system for electroinc tagging is currently being used on low-risk convicts who have the device locked to their ankle for their parole. The tamper-proof black box is connected to a central monitoring system by radio.

The Future?

With British Telecom's possible plans to give out telephone numbers at birth, the increasing problems with theft and duplication of credit and debit cards, and the hieghtend paranoia of child abuse, it's not impossible to conceive of a time when people, or even an entire generation are implanted with a microchip which would contain various types of information. Think of the convenience – the ads will say 'you'll never leave home without it', 'Impossible to steal', 'Can find missing spouses, lost children and absentee parents'. Black Ice will be covering these issues in more depth in subsequent issues.

Euro-Hacker Convention

The 9th annual Choas Computer Club Communication Congress will be held from 27th to the 29th December in outskirts of Hamburg.

Subjects include computer and data networks, satellites, blue boxes, radio data comms and copyright. The convention attracts hackers from across Europe for a three day 24hr information binge.

US Military Holes

During summer '91, the US military computer systems in the United States were accessed by Dutch hackers. One of these intrusions was captured on videotape by 2600 Magazine and portions of it were shown by the infamous hack journalist (of another sort) Heraldo Riveria on a nation wide tabloid news programme.

According to 2600 Magazine, the reason for filming the entry was to show how damned easy it was. Great care was taken to ensure that no damage or alteration occured to the system in question. No military secrets were taken and no data was saved to disk. However, the videotape clearly shows how incompetently the computer system was being managed: access was gained by using a very old bug which has been fixed in most computer systems.

Unfortunately hackers who bring these glaring holes to the media's attention are the ones blamed for the problem itself — blaming the messenger for the message. In order to counteract the distorted editing and the outright slander in Heraldo's piece, 2600 is selling the uncut video in its entirety for US $10 plus $5 postage to the UK. Further details of the filming can be found in the Autumn 91 issue: 2600 Subscription Dept., P.O. Box 752, Middle Island, NY 11953-0752. Tel: (516) 751-2600.

Decoder Chip

For only US $1295, you can now get an ESN/MIN reader. If you're confused as to why you would ever want one, ESN stands for Electronic Serial Number and MIN is Mobile ID Number. Both of these are continuously transmitted by a cellular phone. Once this information is received it can be programmed into a PROM chip and used in another cellular phone and billed to the original phone. Curtis Electro Devices for Mountain View, California currently offers this device which undoubtedly is causing some controversey.

Hacking Figures

Less than 3% of harm to corporate computer networks is by hackers, according to Robert M Groll of Mircoframe. Sixty-five percent is caused by accident and 19% by disgruntled employees and the remaining percentage by acts of God.

Bank Card Fraud

A recent flurry of revelations by fraudsters is making banks realise that their credit cards and debit systems are not totally secure.

A man convicted of credit card fraud has told New Scientist magazine how to make working cards in seconds, using published information and an off-the-shelf machine costing less than £1000.

Customers complain every year to banks that their money has been drawn at cash machines without their knowledge. Andrew Stone, serving a prison sentence for using forged credit cards in shops, says the only information needed to make a fake card is the number embossed on a valid card. His testimony, and the demonstration that forged cards can foil cash dispensers, will undermine the banks' defence in an impending court action by victims of 'phantom with-drawls'.

NASA Hacks

A hacker who pleaded guilty to breaking into NASA computer systems has been ordered to undergo mental health treatment and not to use a computer without permission from a probation officer for three years. Prosecutors said it took the hacker four years to get into the system. It must have been frustrating for the people waiting to press charges.

Data in the USSR

Modems in Moscow now have to be registered. Starting in April, the Commercial Service of Moscow City Telephone Network started searching for unregistered modems. According to officials, approximately 100,000 modems are currently in use in Moscow. A general database is being compiled on modem owners.

Officials believe that companies running phone-based communication networks and companies that manufacture and sell modems will help detect the 'illegal' modems. Authorities are requesting that these companies submit their list of users. According to sources, the violators won't be fined, but will be urged to sign a contract.

Big Brother in Germany

Christian Democrats in Germany continue to press for a huge increase in police powers, one that would allow cops to put bugs and video cameras in homes and, in some cases, adopt criminal tactics. They claim this is needed to counter organised crime and left-wing terrorist groups. According to Interior Minister, Wolfgang Schauble, "In the long term we will not be able to avoid using technical methods in people's homes if we want to combat organised crime.'

White House Computer

The United States Government is claiming that notes kept on the White House computer system are not records, but merely private conversations. In shades of Watergate, this claim would allow the government to delete these notes forever. But researchers are saying that these notes comprise 'real and uncensored' history as opposed to the official archives, which are like Disneyland in comparison. In January 1989, the National Security Archive, a private group that collects declassified documents, went to court to prevent the White House computer system from being purged. In 1986, much of the evidence in the Iran/Contra hearing came from messages in the very same system.



Hacker T-Shirts

With the last of the wild rebels being rapidly incorporated into mainstream fashions, the still menacing hacker has yet to be picked upon as a source of chic radicalism.

Rather than wait for Jean Paul Gautier or Vivian Westwood to design appropriate gear for them, two groups of hackers have come out with their own t-shirts.

2600 - The Quarterly Journal of the American Hacker's new t-shirt incorporates the plans for the infamous 'blue box' on the front with magazines masthead. On the back is a montage of sensationalist headline clippings from around the world.

The now defunct Legion of Doom have opted for the Rock Tour style with a list of Internet computer systems they have broken into listed on the back.

Legion of Doom Internet Tour T-Shirt US$ 15, attn. Chris Goggans, 5300 N Braeswood #4, Suite 181, Houston, Texas, USA 77096

2600 T-Shirts US$15 or two for $26, P.O. Box 752, Middle Island, NY 11953-0752.

Hacker: The Computer Crime Card Game

I watched with envy as Emmanuel Goldstein gained access to Norad. If anyone was going to stop Emmanuel, it would have to be me, the Net Ninja. I kept a close eye on him as he hopped over to the Pentagon on the MilNet. He was trying to brute-hack his way in, using every trick he had. He needed those tricks, too, because the ICE on that system was numbing. But I had a few tricks of my own. I watched and waited while Emmanuel penetrated one of the most powerful systems on the net. Then I raided the bastard...

Hacker: The Computer Crime Card Game, is Steve Jackson's latest gaming foray into the hacking/phreaking world. As the introduction explains, the game was conceived after the Secret Service wrongfully raided his company in 1990. Jackson's response was a logical one: sue the Secret Service and make a game about it. Hacker, then, is Jackson's way of letting the Secret Service know how much he appreciated having his civil rights violated.

Hacker has all the elements of its namesake: players can hack, phreak, upgrade their computer equipment, crash systems, use secret indials, use back doors, travel on various networks, trade or coerce favours, nark on friends, raid or get raided (and possibly busted). The goal of the game is to be the first hacker to gain twelve or more active accounts. This number will vary depending on how long you wish to play. With five or so players, a typical game can last all night.

Those who are familiar with the Illuminati game from Steve Jackson will have no problem adapting to the look and feel of the game. The action takes place on an array of cards that, together, constitute the computer network. Each card represents an individual computer system complete with its own security and ICE levels, as well as networking information. Before the game begins, these 'System' cards are dealt randomly to the players, who then proceed to link the cards together by laying them down on a flat surface next to each other. Players may arrange the cards in any way they see fit, although some rules exist to regulate this initial setting-up process. Some cards will only link in one direction, while other cards are multi-linkable. Throughout the game, the playing area, or net, expands as more System cards are added. The advantage to using this Illuminati-style board is that no two games are ever the same; the playing area is always changing. The only disadvantage to this is that the game will require a large, flat playing surface, so playing on a ferris wheel is out of the question.

A typical turn begins by drawing a random special card. These cards are always beneficial to the player who draws them. They can be offensive, defensive, or just plain helpful. The 'Secret Service Raid' card, for example, is played on an opponent: 'Lose all your equipment'. 'Roll 7 or better to avoid a bust'. Some cards counteract the effects of other cards. The Dummy Equipment card, for instance, might be used after a raid: The investigators took your TV and your old Sinclair ZX81, but they overlooked the real stuff. No evidence, no bust, and you keep your system.... Other cards will give you much needed bonuses, such as extra hacks or additions to your dice rolls. The Caffeine and Pizza card, perfect for that manic burst of energy, will give you one extra hack, while the Social Engineering or Trashing card gives bonuses to your dice rolls. In addition, some cards are used only once, while others can be reused. All in all, the special cards are a nice touch and add character to the game.

Hacking is naturally the main par for the course. Skill is required In choosing the right system and in acquiring the bonuses necessary in order to beat the system's security level. A player must begin by hacking one of the indials, which are entrances to the various other systems on the net.

When hacking, a Player must also avoid any ICE that may be present on the system. ICE, short for Intrusion Countermeasure Electronics, obviously doesn't exist yet, but Jackson couldn't resist the Gibsonian concept which is so ingrained in hackers that it might as well exist anyway. Avoiding ICE is a matter of rolling higher than a system's ICE level. A player who is ICEd will experience discomfort as he or she loses accounts on various systems. In some cases, hitting ICE also results in a raid.

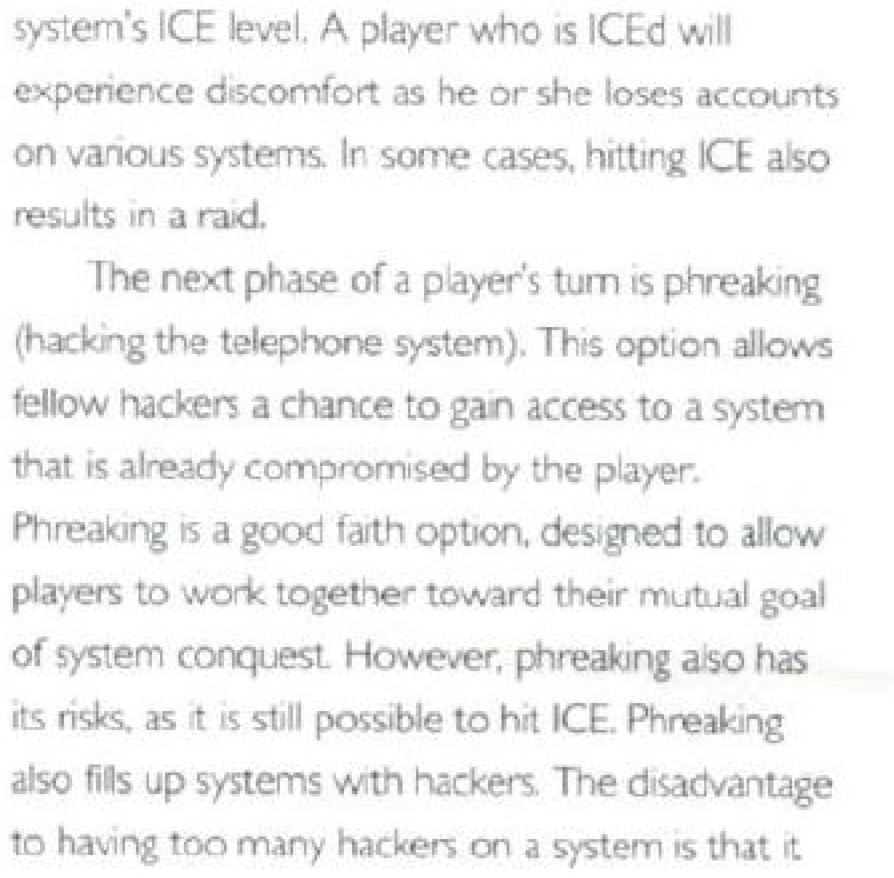
The next phase of a player's turn is phreaking (hacking the telephone system). This option allows fellow hackers a chance to gain access to a system that is already compromised by the player. Phreaking is a good faith option, designed to allow players to work together toward their mutual goal of system conquest. However, phreaking also has its risks, as it is still possible to hit ICE. Phreaking also fills up systems with hackers. The disadvantage to having too many hackers on a system is that it automatically initiates house cleaning.

Hacker manages to capture the spirit of hacking in a cardboard box. True to its name, the main goal is not to invade privacy, increase one's wealth, or cause anarchy. Rather, the goal is merely to gain access, to explore, and to have fun while doing so. **Devil's Advocate**

Religiously Anti-Computers

Tired of countless advertisements vouching for the power and speed of the latest box? Those people who don't think that computers are the most beautiful things in the world should pick up some tacky doom and gloom religious posters from their local group of wide eyed fanatics.

Originally given out by a religious sect whose children have been forbidden by their ministers to attend computer classes, the best is pictured right. Two smaller illustrations below the main one show a doctor pointing an x-ray machine at a victim's head in some form of brainwashing. The second has a scantily clad woman having her palm read by a computer manned by two fascist generals. The computer display reads 666 on her palm. With dated religious doom and gloom text on the back (the end of the world in the late '80s has been crossed out), you can get these tacky posters and a variety of others from wandering groups of nutters on most high streets for about 20 pence each or write, if you dare, to: BM Box 8440, London WC1N 3XX.




SPACE: THE FINAL RIP-OFF
EPISODE 201:
WHAT THE FUCK?
CAPTAIN S LOG, STARDATE 2609.4. OUR MISSION: TO LOCATE FEDERATION AMBASSADOR SPOCK.
CREW, THIS MISSION IS IMPORTANT TO ME. YOU SEE, SAREK AND I, WELL, EUH..., LET'S JUST SAY WE SHARED A SPECIAL MOMENT TOGETHER, OK?
SPOCK MAY HAVE DEFECTED.
WITH BABES LIKE YOU IN THE FEDERATION, HE'D BE CRAZY TO DEFECT.
YOU'RE JUST SAYING THAT BECAUSE MY I.Q. IS BIGGER THAN YOURS.
IT'S NOT THE ONLY THING THAT'S BIGGER...
I HAVE THIS ULTIMATE FANTASY ABOUT SEEING TROI, ONE DAY, WITH SOME CLOTHES ON...
IT WILL NEVER HAPPEN! THIS IS AN INTELLECTUAL PROGRAM.
A GUY CAN DREAM, CAN'T HE?
50 MINUTES HAVE PASSED AND THEY STILL HAVEN'T FOUND SPOCK!
I'LL JUST HAVE TO FIND HIM MYSELF. COME ON, LET'S GO IN !!!!!
I BETTER BRING THESE CHIPS.
FOUND HIM! HE'S ON ROMULUS. DID YOU HEAR THAT LUC?
FASCINATING...
WHERE NO MAN HAS GONE BEFORE...
I SUDDENLY FEEL... I FEEL... WARM, ALL OVER MY BODY... OOOOH... AHHH..
HELLOOOO CAPTAIN!
WORF, GET HIM AWAY FROM ME!
I KNEW IT WAS A MISTAKE TO REPLACE HIS DEFFECTIVE COMPONENTS WITH TANDY PARTS...
AIM FOR THE HEAD WORF! COME ON, BLAST THAT JUNK PILE!
I KNOW YOU ARE, BUT WHAT AM I? HE! HE!
COMPUTER? BEAM LUC AND I DOWN TO ROMULUS AND WHILE YOU'RE AT IT, MELT WESLEY CRUSHER'S HEAD PERMANANTLY.
FUCK!
LOOKS LIKE SPOCK'S BEEN LIVING IN THIS CAVE.
I'M OUT OF CHIPS.
LOOKING FOR ME, COMMANDER BARNOZ?
SPOCK! WE THOUGHT YOU DEFECTED!
NO SILLY! I'VE BEEN LIVING HERE ALL THIS TIME WITH JIM. WITH BABES LIKE HIM IN THE FEDERATION, I'D BE CRAZY TO DEFECT!
AHHHHH!
BARNOZ 91



Why I Hate Saturn

A thoughtful and deep 'graphic novel' about male-female relationships, love, life and work with biting truths and dark wit. Anne is our heroine who has to deal with writer's block while scribing for a 'style' magazine for the truly hip, a sister who's coping with reality by declaring she's the Queen of the Leather Astro Girls of Saturn and trying to get a serious relationship going in NYC.

Cost: £9.95
Publisher: Pirana Press
Found at: Forbidden Planet

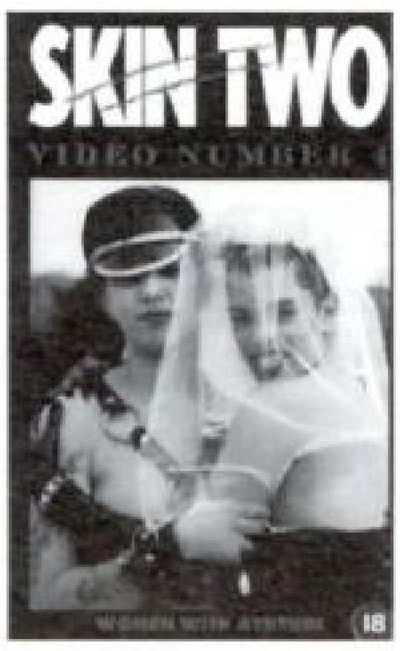




Chick Comics

These are the strangest illustrated religious tracts to be had. Professionally drawn and measuring 5 x 3 inches wide these comics are blatantly Anti-Catholic and anti any form of organised religion. Totalling 80 tracts so far, there are special ones for Gays, Evolution, Witchcraft, Sluts, Rock Bands, Roll Playing Games, Hallowe'en and Mormons. Collectable in their own right. I can't wait for the animated series.

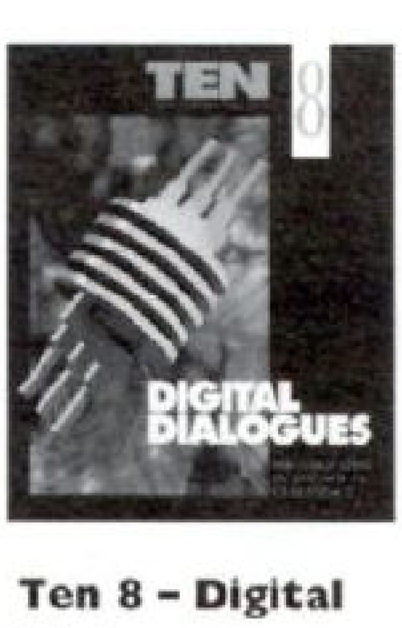
Cost: 10 pence each – 7.99 for 80
Publisher: Chick Press
Found at: Penfold Book & Bible House, Oxon



Skin Two #4

The Skin Two videos keep on getting slicker with each release. Vol #4 includes the wild goings-on at the Europerve party at the Amsterdam Zoo, interview with Bob Carlos Clarke the fetish photographer who brought dark images to coffee tables, a glimpse into the world of lesbian S/M with photographer Della Grace, a look at tattooing and lessons in corseting by the demanding studio presenter Ieish. Get a peek into the fetish & S/M closet, it's not that dark in there.

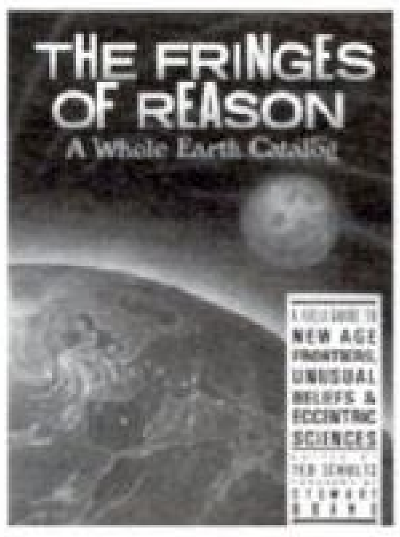
Cost: £16.99
Publisher: R.W.P.
Found at: Skin Two



Ten 8 – Digital Dialogues

At long last someone has finally stepped into the deep and murky waters of the politics of image manipulation. Digital Dialogues covers a broad spectrum of issues from the Gulf War as a videogame to altering history. It also includes hardware overview, fiction by William Gibson and a thorough survey of artists using this technology to manipulate human perception. Buy it now before it's edited out of existence.

Cost: £9.99
Publisher: Ten.8 Ltd.
Found at: Photographers Gallery Bookshop



Fringes of Reason

From the people who brought you the Whole Earth Catalog comes the definitive guide to the creme de la creme of weirdos, new age saps and eccentric scientists. Fringes of Reason contains easily digested sections entitled; The New & Improved Age, Inner Frontiers, Everything You Know is Wrong!, Weird Science, Not of this Earth and What is Reality? The articles are from such notables as Doctor Charles Tart, John Keel, Robert Anton Wilson and the ubiquitous Rev. Ivan Stang. Need I say more....

Cost: £5.50
Publisher: Harmony Books/ New York
Found at: Discount book stores



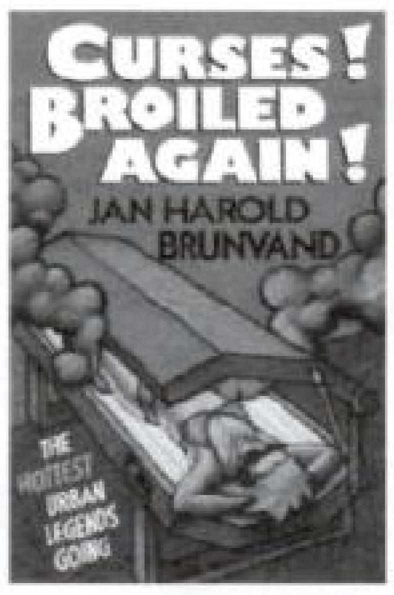
Big Secrets

Have you ever wondered what goes into a can of Coke, how playing cards are marked or how to cheat at the Rorschach test? If you have, this is the book for you. All secrets are revealed, ranging from how bar codes work to the actual contents of famous perfumes to a step by step guide to crashing the Free Masons. The Home Cooking section addresses such unanswered questions as what are the 11 herbs and spices in Kentucky Fried Chicken (since when is MSG a spice?). Open your eyes and smell the coffee. There is a lot being kept from the public and this a step in the right direction. The sequel is called appropriately enough **Bigger Secrets.**

Cost: $6.95
Publisher: Quill
Found at: Special order

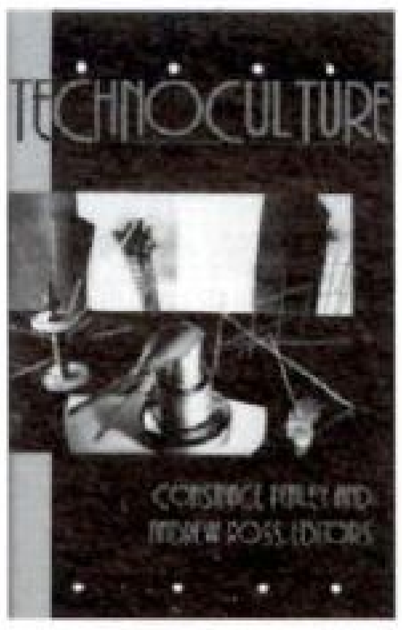
Curses Broiled Again

Have you heard what happened to Fred's sister Lucy's friend. She was visiting her friend's aunt and went to sit down in the easy chair when she heard a mind-



boggling crunch. Jumping up immediately she discovered that she had sat on and crushed a delicate chihuaha to death. She fled and never returned. **Curses! Broiled Again!** is a hillarous collection of the morbid stories known as urban legends. The author, an expert on the subject, fills 335 pages of such lovely gems. He gives the history, the variations and details his quest to verify some of these morsels from suburbia.

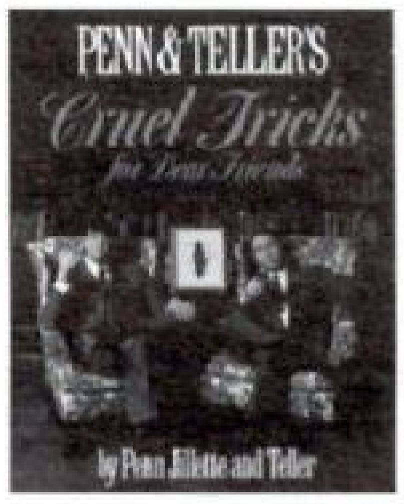
Cost: $6.95
Publisher: W W Norton & Company
Found at: Special order



Technoculture

Tired of utopian views of computers and technology? Bored with Orwellian paranoia about the coming age? The authors of Techno Culture sample (via expert contributors in their field) a wide range of subjects: high-tech office workers, Japanese technoporn producers, AIDS activism, hackers and Star Trek fans. Each subjects gives an interesting view on society and its components. Get it in a complete volume or wait for it to be cannibalised by the Sunday papers' colour supplements.

Cost: $15.95
Publisher: University of Minnesota Press
Found at: Compendium



Pen & Tellers Cruel Tricks for Dear Friends

If you're unaware of the magic Pen & Teller, who dress in grey suits, let the public in on their magic tricks and take every opportunity on British television to hurl abuse at Paul Daniels, then you're in for a treat. Pen & Teller brings magic screaming and kicking into the 90's with macabre overtones and insane antics. Their first book (also a video) lets you into the secrets of their tricks and provides back scene glimpses of such memorable scams as materialising 500 live cockroaches on David Letterman. As well as coming packaged with goodies and tricks, the book itself is gimmicked, allowing the owner to use it in several tricks to embarrass his friends.

Cost: $22.50
Publisher: Villard Books
Found at: Special order

archive

An eclectic sampling of new and old books, videos and magazines that we enjoyed at Black Ice and thought you'd like to know about.



Raw Vision

Contrary to popular belief, interesting and expressive art is not the sole domain of high-brow art galleries, large museums, rich patrons and students at Central St Martins College of Art. Fascinating, innovative and personal perspectives can be found in Raw Vision – International Journal of Intuitive & Visionary Art, a bi-annual magazine that looks off the beaten track at artists who are working for the sake of communication rather than big bucks.

Cost: £5.00 ea.
Publisher: Raw Vision Ltd.
Found at: ICA bookstore



Japanese Kiddie Book

This is one of the weirdest and coolest things that has come into Black Ice's office. The colourful monthly 10x8 book is centred around the fad for Japanese live action super heroes battling deranged rubber monsters – including the cult Ultraman – and is aimed at kids under ten. However it's not just a book full of garish graphics and robotic defenders (if that wasn't enough), but comes jammed packed full of cards, stickers and DIY cardboard toys. One issue included a full deck of playing cards with pictures of superheroes, an inflatable airship, stickers, a complete game with superhero money. A separate issue came with a DIY pin-ball machine – top that Beano.

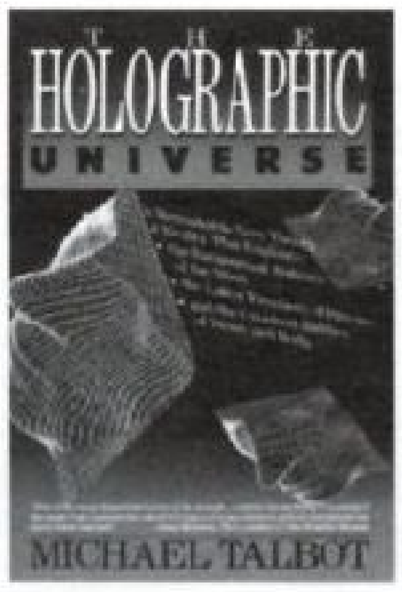
Cost: £4.00 (430 Yen)
Found at: Japan Centres



Space Time and Beyond

Quantum mechanics is a hard thing to get your head around. **Space Time and Beyond** does the obvious thing by printing all the abstract concepts as full page cartoons. It's a really good primer on the subject but it still took three reads before the ideas started to sink in. While the explanations and drawings are very broad, the book is only meant as an introduction to quantum mechanics, more information can be found at the back in the scientific commentary.

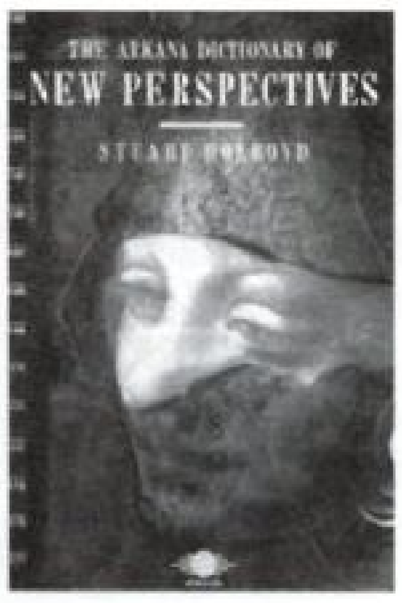
Cost: £4.50
Publisher: Bantam
Found at: Compendium



Holographic Universe

In quantum mechanics the holographic universe is one of the fringe theories of how the universe is made up. It conveniently solves some larger problems in quantum mathematics, explains paranormal abilities of the mind and goes some way to explain how the brain operates. It has recently been found that the mathematical formula developed to explain how a hologram works is the exact same formula used to explain the mechanisms of the eye and how we see 'reality' around us. Another interesting theory is the idea of non-locality in subatomic physics, a phenomena that links two objects together faster than the speed of light: one object is really just the same as the other at a deeper level of reality. So are we just specks of dust in a perceptual hologram? The Holographic Universe theory is at the radical idea end of scientific thought, but the author uses accessible language to introduce in detail concepts scientists are still struggling with. **Cost: £7.95**

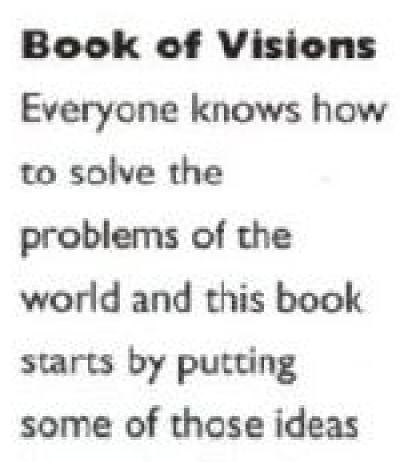
Publisher: Harper Perennial
Found at: Compendium



New Perspectives

Now you can crash any New Age party with confidence (why would you want to??) and actually understand what people are saying or even catch them out. **New perspectives** is a thorough dictionary of fringe or 'New Age' slang and all the associated terminology, describing things like Gnosticism, Feng-shui, Rogerian therapy, Bilocation, Voluntary simplicity etc, etc... Be warned, some of these are working their way out of communes and into modern language.

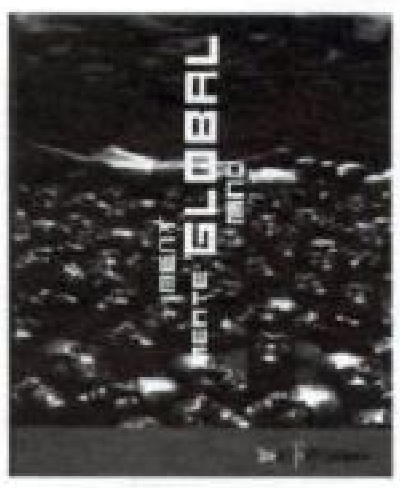
Cost: £6.99
Publisher: Arkana – Penguin Books
Found at: Compendium



Book of Visions

Everyone knows how to solve the problems of the world and this book starts by putting some of those ideas into print. The huge green telephone directory is a compilation from the Institute of Social Inventions magazine with over 500 ideas from around the world. What are 'social inventions'? Well, democracy is one, mail – letters and hospitals are others. Some of the areas covered include quality of life, transport, new money systems and unemployment totalling 24 subjects/ It seems to take 50 years for a new idea to start taking effect in society; let's hope this book speeds the process up somewhat.

Cost: £14.99
Publisher: Virgin Publishing
Found at: Most bookstores



Global Mind – Art Futura 92

Art Futura is the annual conference, exhibition and performance in Barcelona each Spring dealing with all forms future media. While the actual worthwhile content of the event varies significantly with 50% being excellent and the other half being crap the book published a few months later is always brilliant. Somehow in the process of digesting the entire festival all the parts come out smelling like roses. It is a 12x9 full colour coffee table book of the future. **Cost: £20.00**

Publisher: Art Futura
Found at: Direct (010 34 3 459 07 08)

Weekend Scientist: **Let's Make a Thermonuclear Device**

D. I. Radin ; Belly Laboratories

Introduction

World-wide controversy has been generated recently by several court decisions in the United States which have prevented popular magazines from printing articles which describe how to make an atomic bomb. The reason usually given by the courts is that national security would be compromised if such information were generally available. But, since it is commonly known that all of the information is publicly available in most major metropolitan libraries, obviously the court's officially stated position is covering up a more important factor; namely, that such atomic devices would prove too difficult for the average citizen to construct. The United States courts cannot afford to insult the vast majority of the population by insinuating that they do not have the intelligence of a cabbage, and thus the "official" press releases claim national security as a blanket restriction.

The rumours that have unfortunately occurred as a result of widespread misinformation can (and must) be cleared up now, for the construction project this month is the construction of a thermonuclear device. We will see how easy it is to make a device of your very own in ten easy steps, to have and hold as you see fit, without annoying interference from the government or the courts.

The project will cost between $5,000 and $30,000 dollars, depending on how fancy you want the final product to be. Since the last column, "Let's Make a Time Machine," was received so well in the new step by-step format, this month's column will follow the same format.

Construction Method

1. First, obtain about 110 pounds (50 kg) of weapons grade Plutonium at your local supplier. A nuclear power plant is not recommended, as large quantities of missing Plutonium tend to make plant engineers unhappy. We suggest that you contact your local terrorist organization, or perhaps the Junior Achievement in your neighbourhood.

2. Please remember that Plutonium, especially pure, refined Plutonium, is somewhat dangerous. Wash your hands with soap and warm water after handling the material, and don't allow your children or pets to play in it or eat it. Any left over Plutonium dust is excellent as an insect repellent. You may wish to keep the substance in a lead box if you can find one in your local junk yard, but an old coffee can will do nicely.

3. Fashion together a metal enclosure to house the device. Most common varieties of sheet metal can be bent to disguise this enclosure as, for example, a briefcase, a lunch pail, or a Buick. Do not use tinfoil.

4. Arrange the Plutonium into two hemispherical shapes, separated by about 4 cm. Use rubber cement to hold the Plutonium dust together.

5. Now get about 220 pounds (100 kg) of trinitrotoluene (TNT). Gelignite is much better, but messier to work with. Your helpful hardware man will be happy to provide you with this item.

6. Pack the TNT around the hemisphere arrangement constructed in step 4. If you cannot find Gelignite, feel free to use TNT packed in with Play-Doh or any modeling clay. Colored clay is acceptable, but there is no need to get fancy at this point.

7. Enclose the structure from step 6 into the enclosure made in step 3. Use a strong glue such as Krazy Glue to bind the hemisphere arrangement against the enclosure to prevent accidental detonation which might result from vibration or mishandling.

8. To detonate the device, obtain a radio controlled (RC) servo mechanism, as found in RC model airplanes and cars. With a modicum of effort, a remote plunger can be made that will strike a detonator cap to effect a small explosion. These detonator caps can be found in the electrical supply section of your local supermarket. We recommend the "Blast-0-Matic" brand because they are no deposit-no return.

9. Now hide the completed device from the neighbours and children. The garage is not recommended because of high humidity and the extreme range of temperatures experienced there. Nuclear devices have been known to spontaneously detonate in these unstable conditions. The hall closet or under the kitchen sink will be perfectly suitable.

10. Now you are the proud owner of a working thermonuclear device! It is a great ice-breaker at parties, and in a pinch, can be used for national defense.

Theory of Operation

The device basically works when the detonated TNT compresses the Plutonium into a critical mass. The critical mass then produces a nuclear chain reaction similar to the domino chain reaction (discussed in this column, "Dominos on the March," March, 1968). The chain reaction then promptly produces a big thermonuclear reaction. And there you have it, a 10 megaton explosion!

Next Month's Column

In next month's column, we will learn how to clone your neighbour's wife in six easy steps. This project promises to be an exciting weekend full of fun and profit. Common kitchen utensils will be all you need. See you next month!

Previous Month's Columns

1. Let's Make Test Tube Babies! May, 1979
2. Let's Make a Solar System! June, 1979
3. Let's Make an Economic Recession! July, 1979
4. Let's Make an Anti-Gravity Machine! August, 1979
5. Let's Make Contact with an Alien Race! September, 1979